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FATALITY RATES IN THE TREATMENT OF 998 ERYSIPELAS PATIENTS

THE INFLUENCE OF SULFANILAMIDE

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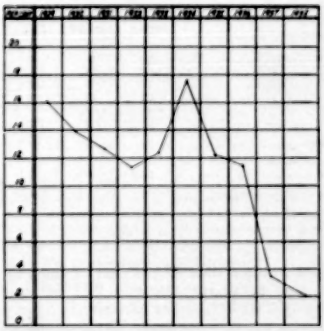
Hippocrates gave a fair description of erysipelas and Galen more closely defined it. Since then various forms of treatment have been as numerous as the centuries that have elapsed. That this disease cannot be ignored as a cause of death is shown in table 1. It may be noted that for the first year of the quinquennium, with 196 patients, the fatality rate was 17.3 per cent, whereas in 1938 among 141 patients the death rate was only 2.1 per cent. Even the last named figure, which includes those of all ages, is of sufficient significance to view with alarm patients in the two extremes of life when the death rates are highest. Surgical patients and those suffering from chronic diseases or conditions in which malnutrition is an important factor are also serious, because in such groups fatality rates are often very high. It is for these reasons that we believe that a reduction of 87.8 per cent in the mortality for erysipelas within a period of five years is an accomplishment worthy of mention.

In table 2 the patients are divided according to age and sex, the number of deaths for each of the age groups and by sex, and with the corresponding fatality rates. It may be noted that approximately 60 per cent were males and 40 per cent females. These proportions are in accord with common observation. Furthermore, it may be seen that the fatality rate for males is almost exactly double the corresponding rate for females, the precise figures being 12.1 per cent in the former instance and 6.3 per cent in the latter. In our total group of patients, fifty-three were under 1 year of age. It is at this period of life that fatal terminations often reach great heights, ranging from 50 per cent upward. Therefore we believe that our fatality rate of 37.3 per cent for this group is satisfactory. Here the question of sex is again of interest, for whereas the patients were almost equally divided in this respect there were 20 per cent more deaths among the males. The rate of 45.8 per cent among those over 76 years of age is not surprising. Although the latter group is small, comprising but fifteen patients with four times as many males as females, it is again noteworthy that there is a preponderance of deaths among the males when compared to the females, the ratio in this group being 7:1.

Table 3 is a summary of patients admitted to the hospital according to the seasons of the several years. This distribution fulfils usual expectations concerning the months in which erysipelas displays its high and low incidence. The higher trends of the disease in the spring and winter is clearly evident and the percentage of patients is approximately the same for these two seasons in each of the five years. Frequently in years past, however, it has been our experience that by far the greatest number of erysipelas patients were admitted to the hospital in March and April. Not only was the number of patients greater in the spring but most deaths occurred in this season.

The chart is a graphic representation of the trend of erysipelas mortality at the Cook County Hospital for the period 1929-1938. The sharp decline we believe is not altogether due to variations in the severity of this disease but is in fact attributable in a large measure to improved methods of treatment.



Comparative mortality, 1929-1938.

We have previously referred to the influence of age and sex on the prognosis of the average attack of erysipelas. Other factors affecting the outcome pertain to the site of infection, as is well known. In table 4 there will be found a division of our patients according to the manner of infection and the areas involved. The fact that so large a proportion of the patients are classified as unknown for the mode of infection is not surprising. One of the most frequent ports of infection is the nose, as a consequence of abrading the mucous membrane of the nostril by means of the finger nail. Likewise, in a similar manner the ear sometimes serves

From Contagious Disease Department, Cook County Hospital.

as a port of entry when abraded by an exploring toothpick, match or fingernail. Under such circumstances the patient invariably denies a history of trauma. Furthermore, because of the accessibility of the nostrils, the ears and any portion of the face or even head, we find that such areas provide the soil for an attack of erysipelas in more than 85 per cent of cases as a rule. In our own series the rate was 90.1 per cent. The incidence of facial erysipelas exclusive of other portions of the head was 86.6 per cent. There were but 7.4 per cent of all cases in which erysipelas primarily affected the extremities; the trunk was the original site of infection in 2.4 per cent.

Much could be written about the multiplicity of methods advised in the past for the treatment of erysipelas. Local applications, including heat, cold, ointments and mechanical measures such as elastic bandages and collodion bands have been used. Internal medications have embraced a great variety of drugs. There have been antistreptococcus serums and more recently erysipelas antitoxins. Whole blood, intramuscularly or intravenously, has been advocated. Convalescent human serum has also been recommended. Roentgen irradiation and ultraviolet rays have at times been in the ascendancy. Various degrees of success have been reported irrespective of the therapy applied. In table 6 we have indicated the use of a number of the measures mentioned for the purpose of illustrating what may be anticipated in respect to recovery. Nevertheless we realize that many of these groups are too small to afford an accurate basis of conclusion in respect to efficiency or lack of therapeutic value for the remedies used.

Prior to the introduction of sulfanilamide, we believed that the use of ultraviolet rays was probably the most successful agency for treatment that had been followed in the Contagious Disease Department for many years past.

It may be seen at the end of table 6 that 162 patients were treated with sulfanilamide. Of that number 132 received such therapy during the year 1938. The status of these patients with regard to age and sex is set forth in tables previously referred to. The fatality rate for all admissions in 1938 was the lowest ever recorded in our experience (2.46 per cent) and is not confined to any single group. It includes all from infancy to old age and both surgical and those with debilitating diseases who are so commonly a prey to erysipelas. There are no fatal instances excluded from our statistics regardless of how soon death occurred after the patient entered the hospital.

We believe it a matter of interest to record the principal diseases and conditions which were present in our erysipelas patients. This has been done in table 5. Here

TABLE 1.—*All Cases by Years, 1934-1938*

Year	Cases	Deaths	Per Cent
1934	196	34	17.3
1935	254	31	12.2
1936	202	23	11.3
1937	205	7	3.4
1938	141	3	2.1
Totals	998	98	9.8

TABLE 2.—*Cases and Deaths According to Age Groups, 1934-1938*

Ages, Years	Cases			Deaths			Fatality per Cent According to Age		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Under 1	29	24	53	12	8	20	41.3	33.3	37.8
1-5	29	23	52	1	0	1	3.4	0.0	1.7
6-15	15	16	31	1	0	1	6.6	0.0	3.3
16-25	22	37	59	2	1	3	9.0	2.7	5.8
26-35	52	42	94	1	0	1	1.9	0.0	0.9
36-45	115	77	192	12	2	14	10.4	2.5	6.4
46-55	169	84	253	11	3	14	6.5	3.5	5.0
56-65	125	73	198	22	6	28	17.6	8.2	12.9
66-75	34	17	51	4	4	8	11.7	23.5	17.6
76-86	12	3	15	7	1	8	58.3	33.3	45.8
Totals	602	396	998	73	25	98	12.1	6.3	9.8

TABLE 3.—*Seasonal Distribution of Cases, 1934-1938*

Year	Spring	Summer	Fall	Winter
1934	71	21	42—	62
1935	92	29	48	85
1936	65	35	45	57
1937	72	15	32	86
1938	29	30	30	52
Totals	329	130	197	342
Fatal cases	32	8	27	31
Percentage of all cases, 5 year period	32.9	13.0	19.7	34.2
Fatality rates, percentage	9.7	6.1	13.7	9.0
Percentage of all deaths, 5 year period	32.6	8.1	27.5	31.6

TABLE 4.—*Manner of Infection and Area Involved*

	Manner of Infection			Areas Involved			
	Post-operative	Trauma	Unknown	Face	Head Other than Face	Trunk	Extremities
1934	7	16	173	171	6	8	11
1935	13	25	216	222	9	8	15
1936	5	7	190	163	9	6	24
1937	7	25	173	195	6	2	2
1938	0	7	134	114	5	0	22
Totals	32	80	886	865	35	24	74
Percentage of all cases, 5 year period	3.2	8.0	88.7	86.6	3.5	2.4	7.4
Fatal cases	4	7	87	79	5	6	6
Fatality rate, percentage	12.5	8.7	9.8	9.1	14.2	25.3	8.1
Percentage of deaths, 5 year period	4.0	7.1	88.7	80.6	5.1	6.1	6.1

TABLE 5.—*Contributory Causes and Complications of Erysipelas*

Complication	Cases	Deaths	Fatality Rate, Percentage	Percentage of All Deaths, 5 Year Period
Diabetes	14	4	28.5	4.0
Nephritis	2	1	33.3	1.0
Bronchopneumonia	30	29	96.3	29.5
Skull fracture	4	1	25.0	1.0
Carcinoma of tongue	1	1	100.0	1.0
Organic heart disease	21	9	42.8	9.1
Syphilis of central nervous system	4	2	50.0	2.0
Cirrhosis of liver	5	3	60.0	3.0
Varicella	1	1	100.0	1.0
Septicemia	5	5	100.0	5.1
Peptic ulcer	1	1	100.0	1.0
Cavernous thrombosis	1	1	100.0	1.0

are listed not merely the complications which were contributory to a fatal termination but also diseases and conditions which were present prior to the attack of erysipelas and therefore greatly increased the hazards attending the illness. We have enumerated the respective totals, indicated the number of fatalities for each and shown fatality rates for the various groups in which pathologic conditions, not necessarily related to erysipelas, were present. The last column of table 5 shows the part played by the various complications or conditions in contributing to the total number of deaths. It is evident from the figures, as might be anticipated, that bronchopneumonia is the most important complication causing death and that those patients who suffer from organic heart disease prove to be unusually poor risks when subjected to attacks of erysipelas.

For 378 patients treated by Fox,[3] the fatality rate was 9.52 per cent. The patients were divided into two groups, one being treated by serum and the other without serum. There was no significant difference in the fatality rates, which were 8.8 for the former and 9.7 for the latter.

More recently Snodgrass, Anderson and Renne [4] described the treatment of 242 patients who were given sulfanilamide. Their fatality rate was only 2.06 per cent. It is rather interesting that the latter figure corresponds closely with our own group of 162 patients when sulfanilamide was used with a fatality rate of 2.46 per cent. These figures are particularly impressive to us when we consider the years 1929-1933. For that period 1,193 cases were reported by one of us [5] with a fatality rate of 13.4 per cent at the Cook County Hospital. Consequently, it is our conclusion that sulfanilamide is the most effective form of therapy thus far used in the treatment of erysipelas.

TABLE 6.—*Treatment and Results, 1934-1938*

Medication	Number of Cases					Total Cases	Average Hospital Days	Secondary Spread	Deaths	Percentage of Spread	Percentage of Fatalities
	1934	1935	1936	1937	1938						
Ultraviolet rays	131	190	74	82	0	477	7.95	68	52	14.2	10.9
Ultraviolet rays; cold magnesium sulfate	1	0	46	38	0	85	7.36	5	3	5.8	3.5
Ultraviolet rays; hot compresses	1	5	4	7	0	17	10.47	2	2	11.7	11.7
Ultraviolet rays; cold compresses	1	5	26	2	0	34	9.35	4	2	11.7	5.8
Ultraviolet rays; roentgen rays	1	0	0	0	0	1	12.00	0	0	0.0	0.0
Ultraviolet rays; prontosil	0	0	1	0	0	1	9.00	0	1	0.0	100.0
No treatment	8	16	6	17	2	49	5.38	0	8	0.0	16.3
Roentgen rays	2	0	0	0	0	2	11.00	0	1	0.0	50.0
Cold compresses	11	14	18	1	0	44	8.13	3	1	6.8	2.2
Hot compresses	1	6	6	4	0	17	8.23	0	3	0.0	17.6
Cold magnesium sulfate	1	1	14	17	0	33	8.00	0	2	0.0	6.0
Cold magnesium sulfate; collodion band; ultraviolet rays	0	0	1	0	0	1	11.00	0	1	0.0	100.0
Cold magnesium sulfate; hot compresses; ultraviolet rays	0	0	2	0	0	2	13.00	0	0	0.0	0.0
Cold magnesium sulfate; collodion band	0	0	1	0	0	1	5.00	0	0	0.0	0.0
Convalescent serum	4	12	0	0	1	17	9.05	0	3	0.0	14.6
Convalescent serum; ultraviolet rays	0	2	0	2	0	4	13.50	2	2	75.0	50.0
Convalescent serum; cold compresses	2	0	0	1	0	3	7.33	0	0	0.0	0.0
Antivirus cream	15	1	1	0	0	15	7.20	4	4	26.6	26.6
Antivirus cream; ultraviolet rays	5	1	0	2	0	8	9.87	2	4	25.0	25.0
Antivirus cream; cold compresses	4	0	0	0	0	4	11.50	0	0	0.0	0.0
Antivirus cream; convalescent serum	1	0	0	0	0	1	7.00	0	1	0.0	100.0
Collodion band	1	0	0	0	0	1	7.00	0	1	0.0	100.0
Collodion band; ultraviolet rays	1	0	0	2	0	3	10.00	1	0	33.3	0.0
Collodion band; antivirus cream	0	1	0	0	0	1	19.00	1	0	100.0	0.0
Erysipelas antitoxin (Amp. I)	2	0	0	0	0	2	4.50	0	1	0.0	50.0
Erysipelas antitoxin; convalescent serum (Amp. I) 20-40 cc.	4	0	0	0	0	4	9.50	1	1	25.0	25.0
Erysipelas antitoxin; ultraviolet rays	1	0	0	0	0	1	2.00	0	0	0.0	0.0
Cold compresses; antivirus cream; ultraviolet rays	0	0	2	0	0	2	6.50	0	1	0.0	50.0
Sulfanilamide; cold compresses	0	0	0	0	3	3	11.66	0	0	0.0	0.0
Prontylin; hot compresses	0	0	0	0	3	3	6.33	0	0	0.0	0.0
Prontylin	0	0	0	30	132	162	6.56	0	4	0.0	2.46

COMMENT

In 1930 Ude and Platou [1] reported on the treatment of 402 erysipelas patients, who were divided into six groups according to the method of treatment adopted. Fatality rates for the respective groups varied from 23.8 to 7.6 per cent. Magnesium sulfate locally, roentgen irradiation, ultraviolet irradiation and erysipelas antitoxin constituted the chief form of therapy in each of four groups; in the remaining two groups combined forms of therapy were used. Their lowest fatality rate was attained by the employment of ultraviolet rays.

Symmers and Lewis,[2] reporting on the treatment of 4,698 patients with erysipelas antitoxin, had a fatality rate of 7.2 per cent.

1. Ude, W. H., and Platou, E. S.: Erysipelas: A Comparative Study of the More Recent Methods of Treatment, J. A. M. A. **95**:1-4 (July 5) 1930.

2. Symmers, Douglas, and Lewis, K. M.: The Antitoxin Treatment of Erysipelas, with Observations on 4,698 Patients so Treated, M. Clin. North America **18**:861-866 (Nov.) 1934.

3. Fox, M. J.: The Treatment of Erysipelas, Wisconsin M. J. **36**:528-534 (July) 1937.

4. Snodgrass, W. R.; Anderson, Thomas, and Renne, J. L.: Sulfanilamide in the Treatment of Erysipelas, Brit. M. J. **2**:399-403 (Aug. 20) 1938.

5. Hoyne, A. L.: Erysipelas: Some Observations Regarding 1,193 Cases, M. Rec. **141**:132 (Feb. 6) 1935.

25 East Washington Street.

Relation of Physiology to Medicine.—The obligations of physiology to medicine are twofold: to teach the student bent on the practice of medicine the normal functions of the human body, and in doing so to train him as an accurate observer and thinker; and to lay a foundation upon which the house of medical science shall erect itself. If you will, you may weld the two together and say that in its relation to medicine the function of physiology is to gather, classify, and spread knowledge and methods of studying the normal functions of the animal body.—Lewis, Sir Thomas: Research in Medicine and Other Addresses, London, H. K. Lewis & Co., Ltd., 1939.

SURGICAL ASPECTS OF CARCINOMA OF THE LARGE BOWEL

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Well informed surgeons today have learned much about carcinoma of the colon and rectum. They know that the disease is often curable but that delayed diagnosis forces almost one half of the victims to seek surgical help in an incurable state. They have been taught the importance of certain characteristic symptoms which at once arouse suspicions demanding thorough investigation. In addition they know from precept, if not from experience, the essential value of abdominal and especially of rectal palpation, of proctoscopy and of sigmoidoscopy. Furthermore, they appreciate the accuracy of diagnosis of the colonic lesions which is possible in the hands of efficient roentgenologists and acknowledge the great contribution which roentgenology has made toward early diagnosis. With these concepts firmly in mind, modern surgeons are profoundly interested in the practical surgical approach and it is to such a consideration that these remarks are addressed.

TABLE 1.—*Carcinoma of Large Intestine: Operability Rate*

	Cases	Resections	Operability
Right	25	21	84.0%
Transverse	18	14	77.7%
Left	88	62	70.4%
Rectum	102	69	67.6%
Total	233	166	71.2%

The group of 233 cases on which the accompanying statistics are based represents patients operated on by the authors over an eighteen year period in four hospitals and drawn largely from the private practice of the senior author. These statistics correspond in general with those from other clinics, and while the group of cases is not large enough for conclusive evidence it does serve to focus attention on certain specific principles which we desire to emphasize.

OPERABILITY

Operability rates depend on many factors and may reflect both the type of patients in a given series and the attitude of the operator toward radical resection. An extension of operability will necessarily result in a higher mortality rate, but mortality rates in cancer surgery should be viewed with a less critical eye than mortality rates in nonfatal diseases. As Dr. J. M. T. Finney has so often remarked, exploration in these cases represents "the last call." The patient must be given his chance, and indeed he is usually glad to take his chance, if it is a reasonable one. Our operability rate over the years, based on the percentage of resections in the cases in which operation was performed, has been 71.2 per cent (table 1). It is interesting to note that it has been highest for the tumors on the right side and has gradually decreased as successive portions of the large intestine are considered. Thus the percentage of operability for the right colon is 84, for the transverse colon 77.7, for the left colon 70.4 and for the rectum 67.6.

Read before the Section on Surgery, General and Abdominal, at the Ninetieth Annual Session of the American Medical Association, St. Louis, May 19, 1939.

In the presence of demonstrable visceral or peritoneal metastases it is often justifiable, and indeed good judgment, to remove an operable obstructing lesion. This practice has enabled a number of patients to live comfortably for periods of two and three years before succumbing to the disease. In other instances, however, there has been disappointment when local recurrence with obstruction has supervened in a few months.

In a number of cases it has not been possible to ascertain at once the operability of a given tumor without first making a careful, discreet beginning of resection. In this way several growths which at first inspection and palpation would necessarily be considered inoperable have finally been found removable. On the other hand it has as often been necessary to withdraw when the operator was convinced that further attempts at extirpation were unwise.

THE INOPERABLE CASE

Statistics generally, including our own, show a slightly higher mortality rate for simple exploratory or palliative procedures than they do for the resections (table 2). Nevertheless, in the presence of an inoperable obstructing lesion the surgeon who would do what he can to prolong his patient's life is confronted with the necessity of performing some palliative operation. The choice is likely to be either a short-circuiting anastamosis, a colostomy or, in the case of a low rectal growth, local destruction of the lesion. The latter procedure has been carried out at times with the curet, the actual cautery or the desiccating current. Such desiccation or diathermy applied to a frank carcinoma should, in our opinion, be limited to inoperable growths and not used as the procedure of choice, as has at times been advocated. A strange exception appears in this series when it is shown that thirty-three exploratory or palliative operations in connection with rectal cancers were performed without a hospital death.

For the inoperable low sigmoid or rectal growth which at the time of exploration is not obstructing, one of us (H. B. S.) has advocated and practiced for many years a procedure termed precolostomy.[1] A knuckle of sigmoid proximal to the growth is brought out through a short left McBurney incision and sutured to the skin. This maneuver need not interfere with the fecal flow but is in effect the first stage of a sigmoidostomy. The second stage, consisting of an incision in the intestinal wall, can be performed in the near or distant future, when necessity dictates, or may never need to be done at all.

In the presence of an inoperable tumor and more especially in the presence of a recurrence, irradiation is often helpful. Adequate roentgen therapy and the implantation of radium or radon may contribute much to the patient's comfort.

PREOPERATIVE MEASURES

It is a fortunate fact that the majority of patients present themselves in a condition which permits preoperative preparation. Two complications, however, may require prompt operation and indeed may so obscure the diagnosis as to make it clear only when exploration has been carried out. The first of these, acute obstruction, occurred ten times in our series, while the second, perforation accompanied by abscess formation, occurred six times. Of these sixteen patients, five died after the primary procedure and one after the second stage of resection. Among other serious com-

1. Stone, H. B.: Precolostomy for Inoperable Carcinoma of the Rectum and Lower Sigmoid, Am. J. Surg. **30**: 355 (May) 1933.

plications which may exist are anemia, dehydration and dietary deficiency states. The indication is clear to correct these complications by appropriate means as far as one is able.

Partial intestinal obstruction represents the major problem to be solved before the patient is fit for the removal of his growth. It is our firm belief that in the majority of cases the bowel can be safely and satisfactorily decompressed and cleansed without recourse to any sort of enterostomy. To obtain such a cleansing, a week or longer must be allowed and a definite regimen must be followed. Our practice has been to prescribe a daily saline cathartic, a daily cleansing enema, liquid petrolatum and a high carbohydrate, low residue diet. Should it appear after a reasonable interval, however, that these or similar measures have been ineffective and that the patient continues to exhibit signs of partial obstruction, surgical drainage of a proximal segment should be carried out.

In addition to acute obstruction of the intestine, to perforation of the growth and to ineffective conservative measures, preliminary drainage of the bowel may also be called for with patients who are poor risks by reason of age or of associated diseases. This is especially true of tumors of the right half of the colon, in which the drainage may consist of an ileocolostomy, thereby completing the anastomosis feature of the resection. While in no sense criticizing others who use preliminary drainage as a routine procedure, we are convinced that it should be reserved for special indications and we predict that experienced operators will use it with less frequency in the future. The preference for one stage operations in this series is clearly demonstrated when it is shown that only eleven of the 166 resections were preceded by some type of preliminary bowel drainage and that in three of the eleven drainage was done elsewhere.

We have had no experience with intraperitoneal vaccination and do not believe at this time that the evidence is conclusive enough to warrant its adoption. The reports, however, are being followed with deep interest.

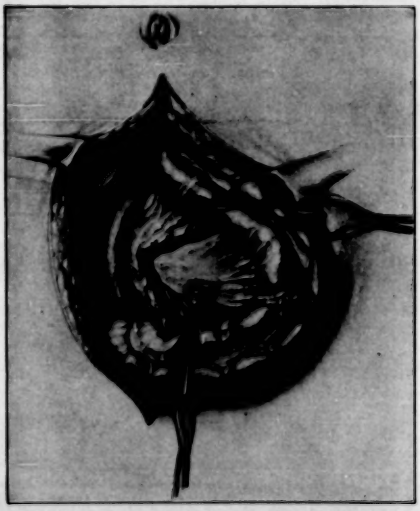

Fig. 1.—Resection of the sigmoid colon and aseptic end to end anastomosis, Stone clamps being used. The growth with a generous margin of intestine and with adjacent mesentery is about to be resected. The handle of each clamp secures the blades in their closed position. Two other clamps are to be placed on the ends of the segment to be resected.

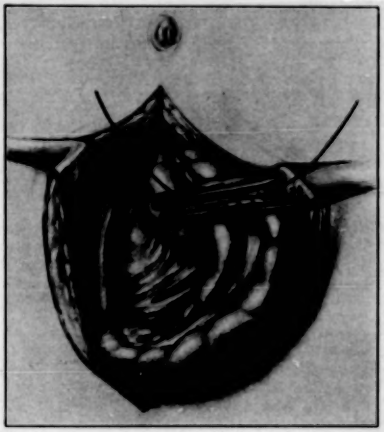

Fig. 2.—The diseased segment has been removed and the ends of the bowel are being brought together for anastomosis. The posterior layer of continuous silk has been laid. The handles are omitted for the sake of clarity.

The surgeon must employ the kind of anesthesia which he has found most satisfactory for abdominal surgery of this type. Just as it is the man behind the splint that counts, so it is the person administering the anesthetic who is of prime importance. The preference in these cases has been for general anesthesia, usually gas-oxygen and ether, and more recently cyclopropane preceded by a basal anesthetic of the barbituric acid series.

OPERATION

The ideal operation for malignant lesions of this area has been well defined by Dixon [2] as "one in which complete removal of the growth is accomplished, normal function is preserved or restored, and recovery is effected." We should like to supplement this statement of sound principles by adding that the ideal operation also is one which assures the earliest recovery of the patient compatible with safety and affords a minimum of pain and discomfort.

In selecting the type of procedure for lesions in the colon, the principle generally adhered to in this series of cases has been aseptic end to end anastomosis following an adequate resection of the growth and its adjacent mesentery. Rankin's obstructive resection [3] has been employed a number of times, however, as have open anastomoses, end to end, side to side and end to side. Allen [4] has given a clear statement of the important points to be observed in performing an anastomosis and has emphasized the advantages of an

2. Dixon, C. F.: Collected Papers of the Mayo Clinic **23**: 317, 1931.
3. Rankin, F. W.: Resection and Obstruction of the Colon (Obstructive Resection), Surg., Gynec. & Obst. **50**: 594 (March) 1930.
4. Allen, A. W.: Right Colectomy for Malignant Disease, J. A. M. A. **109**: 923 (Sept. 18) 1937.

aseptic type of union. While the open type may under certain circumstances be easier, and while in the lateral variety there may theoretically be less danger to the blood supply of the intestinal wall, still we believe that the advantage in avoiding the probability of contamination makes aseptic end to end anastomosis more desirable. In our own experience, seventy-one cases of aseptic anastomosis of the Parker-Kerr or clamp type yielded a mortality of 11.2 per cent, while nineteen cases of open anastomosis yielded a mortality of 26.3 per cent (table 2). It is true that a number of the latter failures were instances of difficult, low sigmoid growths in which a "tube anastomosis" was done in an effort to utilize a short rectal stump and avoid colostomy. As a result we believe that, unless an aseptic type of anastomosis can be satisfactorily performed at this low level, no open type should be attempted. Instead, a permanent colostomy should be made.

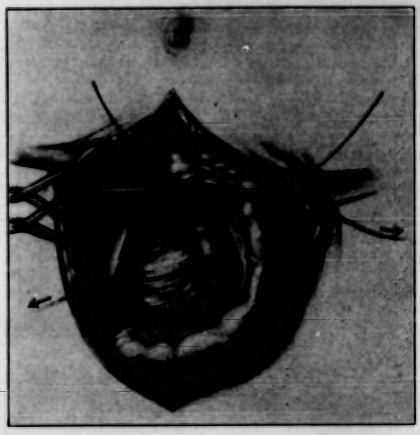

Fig. 3.—The anterior layer of No. 0 chromic catgut has been placed and the handles have been transferred to the opposite ends of the clamps. The clamps which have been released are being withdrawn together, while an assistant makes traction on the ends of the anterior suture. Actually, the cut ends of the intestine in the clamps should face each other and should be closer together.

TABLE 2.—*Carcinoma of Large Intestine: Comparison of Types of Operation*

	Cases	Deaths	Mortality
Exploratory or palliative	67	12	17.9%
vs.			
Resections	168	23	13.9%
Aseptic anastomoses	71	8	11.2%
vs.			
Open anastomoses	19	5	26.3%
One stage resections	151	22	14.5%
vs.			
Two stage resections	15	1	6.6%

As a method of performing aseptic end to end anastomosis, we have been using for almost three years a special set of clamps described elsewhere.[5] These clamps are characterized by their narrow blades and detachable handles. The detailed technic of their use has been given by Owings and Stone.[6] Within the past two years at the Baltimore City Hospitals there have been performed fifteen consecutive one stage resections of the sigmoid utilizing this technic. The cases have all been done by the resident staff and there have been no deaths.

Mayo and Simpson [7] have recently advocated resection and primary anastomosis in the transverse colon and have presented thirty-six cases with an 11.1 per cent mortality for comparison with ninety-five cases of extraperitoneal resection having a mortality rate of 20 per cent. They emphasize the important secondary considerations of avoiding repeated operations and long hospitalization.

TABLE 3.—*Carcinoma of the Rectum: Resection Procedures*

	Cases	Deaths	Mortality
Excision malignant polyps	9	1	11.1%
Perineal excision	18	1	5.5%
One stage abdominoperineal	42	7	16.6%
Total resections	69	9	13.0%

Concomitant decompression in the absence of preliminary drainage is practiced as a routine by many surgeons in the case of a primary anastomosis. It has not been performed in this group of colon cases and our conclusion on reviewing the data is that it should be used more frequently. In low sigmoid anastomoses, however, it has been the practice to introduce a rectal tube and pass the tip several inches proximal to the anastomosis, thereby giving drainage to the proximal segment.

Fig. 4.—The anastomosis is completed by laying a row of mattress sutures of silk, which serve also to invert the original knots. The rent in the mesentery is closed.

In considering the management of malignant growths in the rectum, one of the most perplexing problems is that of the solitary, sessile polyp having malignant characteristics. If grossly and microscopically there is

5. Stone, H. B.: Method of Intestinal Anastomosis with New Clamp, Surg., Gynec. & Obst. 65: 383 (Sept.) 1937.

6. Owings, J. C., and Stone, H. B.: Technic of Anastomosis Using the Stone Clamp, Surg., Gynec. & Obst. 68: 95 (Jan.) 1939.

7. Mayo, C. W., and Simpson, W. C.: Surgical Procedures for Carcinoma of the Transverse Colon, Ann. Surg. 109: 430 (March) 1939.

no invasion of the muscularis mucosae, our policy is to be content for the time being with local excision. The patient is carefully observed and, if there is evidence of recurrence of the polyp, excision is again performed. When histologic evidence is present that epithelial proliferation has invaded the rectal wall, a diagnosis of rectal cancer is made and the appropriate treatment instituted. Of nine instances of malignant polyps, one patient, followed for nine years, has had three recurrences at the site of excision, none of them invading the rectal wall. He is now well, without evidence of disease. Two other patients have required radical excision of the rectum.

The classic work of Miles,[8] in our opinion, still forms the basis of logical attack on rectal cancer. Although the work of Brown and Warren [9] indicates that visceral metastases depend largely on blood vascular invasion by tumor cells, the evidence from Gilchrist and David [10] that lymphatic nodes may be secondarily involved without showing gross change strongly supports the principle that radical removal of lymphatic structures must not be compromised. This leaves the combined abdominoperineal operation as the procedure of choice for the properly selected case. Various modifications of the original operation have been perfected and described by D. F. Jones,[11] Rankin,[12] Lahey,[13] Lahey and Cattell,[14] T. E. Jones,[15] Babcock,[16] and others. Perineal resection of a low lying growth, with or without colostomy, sacrifices something in leaving behind potentially involved lymphatics but offers a less radical operation for the patient who is a poor risk. The surgeon must have a variety of procedures available.

The preference throughout this series has been for one stage abdominoperineal resection (table 3). In 1937, twenty-nine consecutive cases were reported [17] with a hospital mortality rate of 10.3 per cent. These are included in the present total of forty-two cases with a mortality rate of 16.6 per cent. This higher figure represents the extension of the operation to include several bad risk patients with a resulting elevation of

TABLE 4.—*Carcinoma of Large Intestine: Mortality of Resection*

	Resections	Deaths	Mortality
Right	21	3	14.3%
Transverse	14	1	7.1%
Left	62	10	16.1%
Rectum	69	9	13.0%
Total	166	23	13.9%

mortality. There have been eighteen perineal resections of the rectum with one death, or a mortality rate of 5.5 per cent. In all the perineal procedures, including the perineal part of the combined operation, the dorsal lithotomy position has been employed and only rarely has the coccyx been excised.

POSTOPERATIVE CARE

Either during or immediately following a resection of the large bowel, the patient should receive as a routine procedure a transfusion of blood. Other intravenous fluids should be given in large enough amounts to insure an adequate urinary output, as suggested by Maddock and Coller.[18] Conscientious care on the part of the surgeon and his hospital organization can do much toward avoiding and lessening the threatened complications. Shock and infection as well as cardiovascular, pulmonary and urinary complications may be expected and if they appear should be treated promptly. Aluminum paste [19] on the skin has proved a great help in preventing irritation from fecal drainage in the early weeks. Instruction on the part of the surgeon is necessary in helping the patient to care for his colostomy.[20] Only by sending out patients properly trained in managing their colostomies will it be possible to dispel the ordinarily unjustifiable fear of colostomy which is held by many physicians as well as by the public at large.

TABLE 5.—*Carcinoma of Large Intestine: Causes of Death*

	Cases
Directly related to operative procedure:	
Peritonitis	11
Intestinal obstruction	2
Indirectly related to operative procedure:	
Cardiac failure	4
Pneumonia	2
Embolism	2
Diabetes	1
Cerebral hemorrhage	1
Total	23

CAUSE OF DEATH

Among the 166 resections there were twenty-three deaths, or a mortality rate of 13.8 per cent. In the small group of fifteen two stage operations there was only one death, a rate of 6⅔ per cent, while in 151 one stage cases there were twenty-two deaths, or a rate of 14.5 per cent. In sixty-three cases of one stage colonic resection completed with an aseptic anastomosis there were eight deaths, or a mortality of 12.6 per cent.

In considering the twenty-three fatalities associated with resection, thirteen, or 56.5 per cent, of these fatalities can be directly attributable to the operative procedure, there being eleven cases of peritonitis and two cases of intestinal obstruction (table 5). The remaining ten cases were due to cardiovascular, pulmonary, cerebral or diabetic complications. The incidence of peritonitis stresses to us the importance of an aseptic type of anastomosis, because many of these deaths occurred in the open type, and stresses the importance of more frequent employment of concomitant bowel drainage.

SUMMARY AND CONCLUSIONS

Modern surgeons, who are well informed with regard to symptoms and diagnosis of carcinoma of the colon and rectum, are especially interested in the practical surgical approach.

8. Miles, W. E.: Method for Performing Abdominoperineal Excision for Carcinoma of the Rectum and of the Terminal Portion of the Pelvic Colon, Lancet 2:1812, 1908.
9. Brown, C. C., and Warren, Shields: Visceral Metastasis from Rectal Carcinoma, Surg., Gynec. & Obst. 66:611 (March) 1938.
10. Gilchrist, R. K., and David, V. C.: Lymphatic Spread of Carcinoma of Rectum, Ann. Surg. 108:621 (Oct.) 1938.
11. Jones, D. F.: A Two Stage Combined Abdominosacral Operation for Carcinoma of the Rectum, J. A. M. A. 65:757 (Aug. 26) 1915.
12. Rankin, F. W.: Graded Perineo-Abdominal Resection of the Rectum and Rectosigmoid, Am. J. Surg. 27:214 (Feb.) 1935.
13. Lahey, F. H.: Two Stage Abdominoperineal Removal of Cancer of the Rectum, Surg., Gynec. & Obst. 51:692 (Nov.) 1930.
14. Lahey, F. H., and Cattell, R. B.: Two Stage Abdominoperineal Resection of the Rectum and Rectosigmoid for Carcinoma, Am. J. Surg. 27:201 (Feb.) 1935.
15. Jones, T. E.: The Treatment of Cancer of the Colon, Surg., Gynec. & Obst. 62:415 (Feb., No. 2 A) 1936.
16. Babcock, W. W.: The Operative Treatment of Carcinoma of the Rectosigmoid with Methods for the Elimination of Colostomy, Surg., Gynec. & Obst. 55:627 (Nov.) 1932.
17. McLanahan, Samuel: One Stage Abdominoperineal Resection for Carcinoma of the Rectum, South. M. J. 30:382 (April) 1937.
18. Maddock, W. G., and Coller, F. A.: Water Balance in Surgery, J. A. M. A. 108:1 (Jan. 2) 1937.
19. McLanahan, Samuel: Aluminum Paste and Skin Protection in Enterostomy, J. A. M. A. 108:385 (Jan. 30) 1937.
20. Cattell, R. B.: The Management of Colostomy, S. Clin. North America 18:755 (June) 1938.

Operability rates affect mortality rates, but the latter must not be viewed too critically in cancer surgery. Our own operability rate for the large intestine has been 71.2 per cent.

It is often justifiable to remove an operable obstructing lesion in the presence of visceral metastases. Before the operability of a tumor can be determined finally, it may be necessary occasionally to make a careful, discreet beginning of resection.

In addition to the usual palliative procedures for an inoperable tumor, precolostomy has been used frequently for low sigmoid or rectal growths, thereby obviating in many cases the immediate formation of a fecal fistula.

The intestine can be cleansed safely and satisfactorily in the majority of cases without recourse to any sort of preliminary enterostomy. Acute obstruction, perforation, ineffective conservative measures, age and associated diseases, however, may be indications for preliminary surgical drainage of the bowel and a two stage procedure. A one stage operation has been preferred whenever possible in this series.

While a variety of procedures are available for the colon, aseptic end to end anastomosis following an adequate resection has been the operation of choice. Seventy-one such cases yielded a mortality of 11.2 per cent. Concomitant decompression in the absence of preliminary drainage should be employed occasionally.

Local excision of a solitary malignant rectal polyp not invading the rectal wall is sufficient, provided careful observation of the patient follows. Radical operation should be performed if and when invasion of the rectal wall is determined.

Abdominoperineal resection is the logical operation for carcinoma of the rectum and in this series has been carried out in one stage. Perineal resection has been used for low growths in patients who are poor risks. Instruction of the patient by his surgeon with regard to the care of his colostomy is of the utmost importance.

While only 56 per cent of the deaths are directly attributable to the operative procedure, the incidence of peritonitis is high enough to stress the importance of an aseptic type of anastomosis and the desirability for more frequent employment of concomitant bowel drainage.

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ABSTRACT OF DISCUSSION

Dr. James D. Rives, New Orleans: Three features strike me as being noteworthy: first, the large percentage of radical operations, which I think it fair to credit largely to the high level of intelligence among the professional friends and the clientele of the authors. The frequency of radical operations in my practice is less than 50 per cent; second, the high frequency of resection with primary anastomosis, which must be credited to their supreme confidence in their operative methods; and, third, the low operative mortality, which justifies that confidence. I have believed that for most surgeons multiple stage operations are safer and that this is particularly true of obstructive resections. Proximal decompression adds materially to the safety of resection with primary anastomosis of the left half of the colon even when no obstruction exists. However, the brief period of disability and the much greater comfort of patients who have had a one stage operation have a strong appeal, and there is no doubt if the mortality is not excessive that this type of procedure is preferable. The results reported by Drs. Stone and McLanahan are at least as good as those I get with multiple stage operations, and for some time I have been attempting to follow their lead. The preoperative preparation is of paramount importance. If the intestine is properly prepared and a careful technic employed, the minimal amount of peritoneal soiling that occurs, even in an open anastomosis, is quite unlikely to cause general peritonitis or even local abscess formation. There is, however, great danger that such soiling may produce a severe or even fatal anaerobic infection of the wound. Aseptic anastomosis is therefore desirable. The technic reported by Drs. Stone and Owings, with the clamp devised by Dr. Stone, is a most satisfactory method in my hands. However, I want to emphasize the fact that the result depends less on the method used than on the manner of its execution. The greatest danger of primary anastomosis is peritonitis, and this results usually not from contamination during the operation but from subsequent leakage at the suture line. This may result from a number of different causes, among which avitaminosis and plasma protein deficiency are probably prominent. Technical difficulties have impressed me most. Obviously the suture line must be gas and water tight, which requires very careful suturing when no through and through suture is placed on the wound margins. If, as the mesentery is dissected during removal of the enlarged nodes, the main vessels are traumatized, thrombosis may occur with gangrene, perforation and death.

Dr. Leland S. McKittrick, Boston: One cannot but be tremendously impressed with the report of so high an operability and so low a mortality. It is difficult to take issue with so excellent a report. On the other hand, not all of us have had the experience of the authors and must depend on the procedures that are safest in the hands of the average surgeon. I have looked up our cases at the Massachusetts General Hospital, where the operations are done not by one or two men but by a large group of well trained surgeons. Prior to 1932 most of the resections of the right colon were done in one stage, probably because of the influence of the late Dr. D. F. Jones, who did most if not all these operations in one stage. In forty consecutive colectomies on the right side prior to 1932, thirty-seven were done in one stage with a mortality of 30 per cent. There were no deaths resulting from the three two stage operations. These forty cases represented 49 per cent of all the cases seen. Since 1932, largely through the influence of Dr. A. W. Allen, many more two stage colectomies on the right side have been done. Of the thirty-eight operations done during the past seven years, twenty have been done in one stage, still with a mortality of 30 per cent. The remaining eighteen have been two stage operations, with a mortality of 22 per cent. It is of significance, however, that not only is the mortality in the two stage group lower but the operability during the past seven years has been 71 per cent rather than 49 per cent, as in the preceding period. It would seem, therefore, that by doing the operation in two stages rather than in one the surgeons at the Massachusetts General Hospital can operate on a higher percentage of patients with carcinoma of the right colon with a lower operative mortality. I know that I can successfully remove the right colon in poor risk patients by doing a preliminary lateral anastomosis between the terminal ileum and the transverse colon and then at a second stage removing the intervening bowel, whereas if I attempted to do the resection in one stage certain of these patients would die. The thing that bothers me, however, is this: Because I can more safely operate on poor risk patients in two stages, does it follow that the younger good risk patients with no obstruction can also be operated on more safely in two stages than in one? Of this I am not convinced. I still do a certain number of one stage operations because I believe that the operation in one stage holds certain advantages over the two stage procedure, but I select these patients very carefully.

Dr. Henry K. Ransom, Ann Arbor, Mich.: I recently reviewed the records of patients with carcinoma of the colon treated at the University Hospital during the past ten years, being particularly interested in the results of treatment of carcinoma of the right colon. A variety of operative procedures were employed. The operative mortality for right hemicolectomy was high. When these cases were considered according to the type of operation performed, (1) the one

stage operation with resection and primary suture anastomosis, (2) the modified Mikulicz procedure or obstructive resection and (3) the two stage operation consisting of preliminary ileocolostomy, with resection of the right colon at a second stage some three weeks later, a rather striking difference in operative mortality was noted. In the majority of cases a one stage operation was performed, and this procedure was attended with the highest mortality. The group of patients treated by obstructive resection was considerably smaller and therefore these statistics are less valuable. However, the mortality in this group was almost as high as in the one stage group. On the other hand, in a small number of cases dealt with by the two stage operation the operative mortality was approximately only one half. We decided to utilize the two stage operation more or less as a routine, and during the past few months seven right hemicolectomies for carcinoma have been done by this method. All the patients have had a satisfactory convalescence and there were no deaths. In the past an important argument in favor of the two stage operation has been the assumption that the first stage provides the peritoneum with increased resistance to infection so that the second stage may be done more safely. Our experimental results showed that, while a preliminary operation such as an intestinal anastomosis or colostomy does confer a certain degree of immunity to infection on the peritoneum, the amount of protection thus afforded is relatively slight and does not constitute an important argument in favor of the two stage procedure. While the application of the results of experimental surgery to the human patient may always be open to question, nevertheless it would seem that if one is chiefly interested in increasing the resistance of the peritoneum to infection this can be accomplished much more effectively by the use of peritoneal vaccination with Steinberg's colibacterin or a similar substance.

DR. CLAUDE F. DIXON, Rochester, Minn.: The authors have emphasized many pertinent points regarding colonic operations. Whether such operations should be carried out in one or in two stages seems to me to be dependent on many factors, the most important being the condition of the patient, the situation and type of the lesion and the custom or usual practice of the individual surgeon. One might compare single and multiple stage operations on the colon and rectum to the management of appendicitis; that is, one surgeon may present excellent results from having operated on the appendix regardless of the phase of the disease, while another may argue that this method is wrong and may present a report of excellent results in an equal number of cases in some of which he used an entirely different plan, namely deferred operation. Suffice it to say that if Drs. Stone and McLanahan and their confrères can continue to obtain such good results in one stage operations perhaps they should hold to their present method of management. Like McKittrick, I was trained, for the most part, to employ the multiple stage plan. If a surgeon completes the operative procedure in a single stage with a disastrous result he wonders what might have happened had he employed a two stage or a three stage method. During the past seven years, instead of the combined abdominoperineal resection I have carried out a procedure in which I reestablish continuity of the bowel. First, a colonic stoma is provided in the transverse or descending colon; then this is followed in two or three weeks by an anterior resection, at the completion of which, end to end anastomosis is effected. The superior hemorrhoidal vessels are sacrificed, the entire pelvic colon is removed, as in the combined abdominoperineal operation, and anastomosis is made between the lower portion of the descending colon or first part of the sigmoid and the rectum. This procedure is just as radical as the combined type of operation except that the rectum is preserved. Malignant processes in the colon rarely spread downward; therefore why is it not justifiable to preserve the rectum? In more than 300 cases in which this procedure has been employed the mortality rate has varied between 8 and 12 per cent. It is my opinion that the morbidity and mortality are much less with this procedure than with the combined operation, and in addition the function of the rectum is not disturbed, since the procedure is carried out through an abdominal incision. Sacrificing the superior hemorrhoidal vessels has not caused impairment of the circulation in the remaining segment of rectum. In cases in which this method is employed it is possible to feel the anastomosis easily by digital examination of the rectum.

DR. FRANK H. LAHEY, Boston: I do not think there will be much disagreement between men on a subject such as this when they have all had considerable experience with it. The disagreements will be largely limited to methods of procedure. Drs. Stone and McLanahan would like to do a great many of these operations in one stage. Dr. McKittrick and some of the other men who have spoken might be considered in between their position and mine, and I represent the group who consider it advisable to remove all abdominal colons in two stages. In my clinic all abdominal colons (not rectums) are removed in two stages by the modified Mikulicz procedure which I have described. I am sure that some of them could probably be done in one stage. If it is a matter of personal reaction on my part certainly all my surgical associates agree with me in the position that the only way to ascertain whether or not the operation can be done in one stage is to risk the matter of a fatality from leakage after an anastomosis. It must be admitted, I feel sure after a large experience with this modified Mikulicz procedure, that the danger of leakage does not exist with that procedure. I know from my own figures that this two stage modified Mikulicz procedure, together with staggering of the terminal loops and immediate decompression as I suggested in my first description of this method, has definitely lowered our mortality rate and widened our operability rate. The operability rate at my clinic last year was 89.9 per cent and the mortality rate 10 per cent for all the cases of carcinoma of the colon and rectum. One of the points I want to make and which I think should be kept in mind is that cases are being rejected today which should not be rejected. One should carefully differentiate between the case in which there is extension from metastases or peritoneal spread and the case in which there is a contact carcinoma. We have had a number of patients who have had a contact carcinoma between a carcinoma of the rectosigmoid and the back of the uterus; in such a case one could remove the uterus, the tubes and the ovaries, together with the rectum. We have had cases in which there has been a contact carcinoma on the top of the bladder from a carcinoma of the sigmoid resting on top of it, but there were no metastases. The top of the bladder could be safely removed, together with the sigmoid. We have had cases of contact carcinoma on the small intestine from a malignant growth of the right colon in which several inches of small intestine has been resected together with the colon and often results of examination of the glands have been negative.

DR. HARVEY B. STONE, Baltimore: There stand out in the discussion three points that deserve emphasis. The first comprises the valuable comments made by Dr. Rives and Dr. McKittrick on the basic principles of anastomosis. As Dr. McKittrick has said, Dr. Dan Jones of Boston was one of the first to emphasize these principles, and he pretty nearly covered the entire field. There has been little to add to his comments on the importance of adequate vascular supply, the avoidance of tension in the suture line and the removal of pressure from within the bowel subsequent to the anastomosis. Dr. McLanahan and I feel that, in addition to the points emphasized by Dr. Jones and referred to by Dr. Rives and Dr. McKittrick, another important factor is the avoidance of gross soiling, which may be approximated at least by the adoption of some form of aseptic technic. The second issue, which has been commented on by every one of the discussers and which was one of the important points we had in mind in the presentation of this paper, is the merit, or otherwise, of a single or multiple stage operation. Dr. McKittrick approached his present position from beginning in the one stage group. I approached my present position in exactly the opposite path, beginning as a routine two stage operator. It is quite apparent from the comment which has been made, with which we heartily agree, that the decision in any case as to the selection of these various methods of attack must depend on a number of varying factors: the patient, the lesion, the surgeon, his experience, his predilections. The plea that we make is that the one stage operation has a field of usefulness. Quite candidly, I think that perhaps we have

pushed it too far and that in the future we shall be inclined to do more multiple stage resections than we have done in the last few years. But I should like to see those who are confirmed two stage operators equally flexible and ready in suitable cases to attempt the one stage procedure, which in spite of all the admitted objections has definite and specific advantages of its own which are not possessed by any type of two stage operation. I would plead for the use of the one stage operation in proper cases and for a point of view of adaptability and flexibility in the decision of this whole matter. The last point that I should like to reiterate is the question of what to do with the small isolated polyp in the rectum, which clinically seems benign but which on microscopic examination shows evidences of malignancy, when the malignant condition has not yet broken through the muscularis mucosae. Our procedure has been to do a local removal and to watch the patient for evidence of recurrence.

TUBERCULOSIS CONTROL

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The behavior and control of tuberculosis, whether in the individual suffering from the disease or as a community problem, depend on the proper control and disposal of bacillus-laden sputum. Control the sputum and spread is prevented; neglect this measure and cases multiply.

Although the tubercle bacillus is the specific cause of tuberculosis, it must be recognized that other factors contribute to both the epidemiology and the pathogenesis of the disease. These contributing factors may be grouped under two headings—the constitutional and the environmental. Of these the environmental factors are legion and appear to play a more common part in disease development than the constitutional. Recognizing the variables which may influence the disease in certain racial, industrial and social groups, it can be stated that contact with a sputum positive case, with its opportunity for infection and reinfection by frequent and massive doses of tubercle bacilli, appears to be the most important single factor.

Keeping in mind the significance of bacillus-laden sputum, the following procedures are essential in the administration of control measures: the reporting and registration of cases of tuberculosis, active and progressive case finding, the segregation and treatment of patients suffering from the disease, domiciliary supervision of families in which tuberculosis is or has been a problem, rehabilitation of cases, the follow-up of all cases and contacts, and financial assistance to needy families in a manner free from the stigma of pauperism. Equally important is the periodic appraisal and evaluation of procedures and services, from the point of view both of administrative economy and of more effective extension of our knowledge of the epidemiology and pathogenesis of the disease.

CONTROL BY DIVISION OF TUBERCULOSIS

In translating the preceding into administrative practice in New York State, the responsibility of the program is placed in the Division of Tuberculosis. There are fifty-seven counties in upstate New York with an estimated total population of 6,080,444. These counties vary in population from 3,929 to 813,786. The death rate from tuberculosis has dropped from 161.5 per hundred thousand in 1900 to 44.7 in 1938.

The purposes of the division may be considered as threefold: first, direct service to the people examined and studied, their families and communities; second, research through the acquisition of data, their classification and interpretation, and third, education of the public and the medical profession. A considerable part of the general administration and supervision of the work performed by local health districts and nursing services is the responsibility of our district state health officers, of whom there are twenty. Problems which require specialized consultation or advice are handled either jointly with a member of the division staff or individually. Knowledge of the scope and extent of the disease problem in a community is as essential to the health officer as the extent and character of a lesion in an individual patient are to a clinician. Such knowledge may be acquired from detailed morbidity and mortality data. By complete checking of detailed information on death certificates regarding residence and so on and prompt and complete reporting of existing cases, the health officer is able actually to take stock and be guided wisely in his administrative program. To provide such opportunities, the reporting of tuberculosis cases is constantly being promoted by both the district offices and the division staff. Consequently the tuberculosis report cards are routed, except for our largest cities and county health district areas, through the office of the district state health officer. Each district officer maintains a case register for all reported cases in his district. The name, address, sex, age, clinical stage and sputum status are all catalogued by the use of colored flags in a visible index file for ready reference in follow-up, public health nursing supervision, and all forms of community assistance toward control. Current data relating to the patient are secured from clinics, tuberculosis hospitals and private physicians, from which each district officer is able to make periodic appraisals of the tuberculosis problem either in his entire district or in any of the counties within the district.

Time does not permit a detailed review of the many other advantages of having this information readily and constantly available. Obviously the district officer is thereby enabled to direct more intelligently the field activities in tuberculosis control, to use the data in promoting advances in case-finding methods, to secure additional clinic sessions and to employ the necessary number of public health nurses. Such data are most essential in directing the local public health nursing service along the most productive channels of service.

The case-finding activities in upstate New York are closely integrated in practically all localities with the thirty-one local tuberculosis hospitals and sanatoriums. All the county tuberculosis hospitals conduct a case-finding service as an activity of their outpatient departments. Except in one or two counties in which the total area of the county is very small, each of the hospitals conducts itinerant clinics in various sections of the respective counties. Emphasis is placed on the examination of contacts and patients who may be referred by their family physicians because of symptoms referable to the chest. There are all together approximately 120 semipermanent or permanent clinics or dispensaries, in addition to a similar service which is available for the people periodically through the itinerant service. The total number of examinations conducted in these

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clinics approximated 55,000 in 1937. The total number of annual clinic examinations throughout upstate New York is between 90,000 and 100,000. The total number of special beds for tuberculosis in upstate New York is 10,326 as compared with 2,716 deaths. Of these beds, 5,537 are in state and local tuberculosis hospitals and the remainder in private hospitals or other state institutions. The ratio of total beds to deaths is 3.8 and the ratio of special public beds is 2.4.

The responsibility of the state department of health, in addition to the promotion of more adequate clinic and hospital service throughout these counties, is generally supervisory. Each hospital is surveyed annually by a representative of the Division of Tuberculosis. Specific recommendations are made regarding the scope and extent of the hospital service, and in many instances these recommendations are followed up by our district officer. In two or three of our larger cities the clinics are conducted by the local department of health, with varying degrees of participation and integration with the personnel of the local county tuberculosis hospitals.

WORK OF TUBERCULOSIS HOSPITALS

In 1930 the State Health Commission, following an intimate study of the tuberculosis control problem in New York State, recommended that the state construct three new tuberculosis hospitals and add an infirmary to Ray Brook, the one state tuberculosis hospital then existing, in order to provide hospital and other control facilities not then available in twenty-five counties.

All these counties are essentially rural and so located as to constitute four comparable districts or areas, each comprising from seven to nine counties having approximately the same population (about 300,000) and relatively the same death rate.

Each of these hospitals has been constructed in the population center of the area served Each acts as the hub of the wheel of tuberculosis control. A continuity of medical service from case finding through treatment and follow-up of both patient and family prevails in each hospital. Tuberculosis is approached on a family and community basis, while the patient is treated as an individual.

Prior to the opening of these hospitals, the Division of Tuberculosis had for fifteen years conducted a consultation clinic service once or twice a year in the counties included in these hospital areas. As a result of this service we have been able to develop an integrated service with the general practice of medicine in these areas. The fact that practically 100 per cent of the general practitioners participate and cooperate by having their patients examined and studied by the hospital staffs has contributed more to the success of these hospital programs than any other single factor.

Each state hospital conducts an active consultation type of outpatient service within the hospital and through clinics held throughout each county in the area. Patients are admitted by a request card signed either by their family physician or by the local health officer. All patients are referred back to their physicians for a report of the examination, which is completed in detail and mailed to the referring physician. Copies of these reports are sent to the district state health officer and the local public health nurse for assistance in follow-up work.

In this clinic service, emphasis is placed on the history of contact with a known case of tuberculosis. Patients who have experienced such contact, as well as patients who are referred by their family physicians because of suggestive symptoms or physical signs, comprise the patient attendance.

These hospitals have been in operation for approximately three years, and during the past two full years of clinic administration a total of 21,804 individuals, comprising 1.8 per cent of the total hospital areas' population, have been examined. The yield in newly discovered cases of tuberculosis among these patients was 3.1 per cent. About 50 per cent of the patients were examined because of history of contact. Of real significance is the fact that, of those patients found with tuberculosis because of the history of contact, 67 per cent were in the minimal stage of their disease, in contrast to 40 per cent of those who presented themselves to the clinic because of symptoms.

Patients are admitted for special study or treatment by applying through their family physician or health officer or directly to the superintendent of the hospital.

Following admission to the hospital, the superintendent, if he decides that the patient is unable to pay for his care, sends a bill to the clerk of the board of supervisors of the county from which the patient was admitted. Following admission, and monthly thereafter, the referring physician receives a report of the clinical progress and treatment afforded each of his patients.

Each hospital maintains a more detailed register than that of the district office. All families in which tuberculosis may be a problem are indexed in detail as to their status regarding infection, chest roentgenogram, contact with sputum positive case, clinical status, and other social and epidemiologic data.

Complete medical and surgical facilities are available in each hospital. All nurses are registered and all physicians are employed full time. A full time thoracic surgeon has been performing the major operations during alternate visits to the three hospitals, although each hospital has a resident surgeon. As a result of the advances and growth of this service which have been realized during the three years since these hospitals were opened, another full time thoracic surgeon will be engaged July 1, 1939, when the new infirmary building at Ray Brook will be opened.

The care and treatment of orthopedic patients are directed by the physicians in our Division of Orthopedics by periodic visits to each hospital.

Research and teaching characterize all phases of the program in each hospital. For many years, medical students have had the benefit of residence teaching at Ray Brook and this service, together with affiliation with schools of nursing teaching programs, is continuously carried on in the three new hospitals.

Standard nomenclature and complete outpatient and medical records are maintained in a manner by which periodic objective appraisals are made of routine practices, special circumstances or conditions relating to epidemiologic, clinical, pathologic, therapeutic or social manifestations or influences which are related to the disease.

Although the laboratory in each hospital conducts all routine examinations, each one is carrying on studies in different fields of research—in one bacteriology, in a second physiology of respiration, in a third special studies relating to the tissue reaction to the tubercle bacillus, and in the fourth pathology. In this manner

duplication of work is avoided and the special resources of all four hospitals are available to any one of the laboratories.

Occupational therapy and some vocational training and guidance are carried on in each hospital. In like manner a medical social worker in each assists the patient and family in adjusting the many industrial, economic and household problems which arise as a result of the disease.

SPECIAL STUDIES

Among the special studies which are being carried on by the Division of Tuberculosis, in addition to this routine program, are those concerned with both the epidemiology and the pathogenesis of the disease.

With special reference to case finding, the department has never looked with favor on the tuberculin testing of school children as a profitable method of finding new cases of tuberculosis. It is our conviction that the most productive method is the examination of contacts and of patients referred by physicians. Although these groups constitute a major problem in every community, there is need for case finding also in other groups, especially among adults. The examination of school children is the least productive method of finding new cases.

As a preliminary to an investigation of the epidemiology and pathogenesis of tuberculosis, selected groups of the population in several sections of the state are being examined. Some of these studies are being conducted entirely by the Division of Tuberculosis, while others are in cooperation with other state departments.

In cooperation with the Division of Industrial Hygiene of the State Department of Labor, an x-ray study of workers in various industries is being carried on. To date we have examined approximately 8,500 workers in heavy industries, including nearly 5,000 workers in foundries and some workers in grain elevators, woodworking establishments and scouring powder and asbestos products factories. The average yield of significant pulmonary tuberculosis was 1 per cent. The detailed results of these continuing studies will be published from time to time.

For purposes of public health education, case finding and investigation in pathogenesis, we have been making tuberculin tests of students and roentgenographing the positive reactors in nine teachers colleges in upstate New York. To date, 6,021 have been examined, of whom 30 per cent reacted to tuberculin and seventeen, or a percentage of 0.3, cases of reinfection type tuberculosis have been found. All negative reactors are retested during the second and third years of their attendance, and those who react, plus the positive reactors of the previous years, are roentgenographed. The details of this study will be reported at a later date.

The high incidence of tuberculosis among mental patients is indicated by the tuberculosis death rates in the New York State mental hygiene hospitals, which varied during 1937 from 200 per hundred thousand to as high as 1,700 per hundred thousand, with a rate of 812 for the total group. It should be mentioned that other death rates indicate that feebleminded and mental patients are constitutionally inferior to the general population. The pneumonia rate, as an example, is approximately ten times greater among mental patients than among the general population; the general death rate among mental patients is 65 per thousand, whereas the rate in the entire population is 13 per thousand. From an epidemiologic standpoint this indicates that the serious problem resulting therefrom is not limited to the spread of this disease among patients but is of extreme importance from the standpoint of the employees. The careless manner in which mental patients cough and expectorate presents problems in prophylaxis which demand special consideration and study. In like manner a study is now being conducted in one of the hospitals for the insane.[1] To date 1,295 patients have been examined, with a yield of 106 newly discovered cases of active pulmonary tuberculosis and an additional eighty whose chest roentgenograms indicate the need for further study before they can be accurately defined. The total number of employees in the institution in which this study is being conducted is 750, of whom fourteen have been admitted to the neighboring state tuberculosis hospital for treatment within the past two years. Of the 160 employees already roentgenographed, four definite cases of pulmonary tuberculosis have been diagnosed and, in addition, two other employees' roentgenograms indicated the necessity for further study before an accurate diagnosis can be made. These are in addition to the fourteen who were already hospitalized, which indicates the seriousness of this problem.

Another study which is being conducted in cooperation with this department is a continuing appraisal of the epidemiology and pathogenesis of tuberculosis by the tuberculin testing and roentgenographing of 2,300 inmates of a school for the feebleminded. In the original examination of this group, 61 per cent reacted to tuberculin and 2.7 per cent showed x-ray evidence of reinfection type tuberculosis. All of these persons are given tuberculin tests and the reactors roentgenographed every six months. Detailed observations are made regarding their domiciliary and hospital environment, with particular reference to the possibility of contact with a person having pulmonary tuberculosis. From the standpoint of contact, the environment in which these patients are cared for is under control in that all persons with whom the inmates come in contact in the daily institutional routine are roentgenographed periodically. The results of this interesting and valuable study will be reported later.

A similar tuberculin-testing and x-ray study is being made of 500 inmates of a state institution for delinquent girls between the ages of 12 and 17 years. Constitutionally and biologically, these girls are different from those found in the feebleminded group. Constitutionally, the latter group is more comparable to the general population than the mental patients.

In order to create more interest among physicians and general hospital authorities regarding tuberculosis, and perhaps to determine a possible cause for the apparently large numbers of nurses and interns who develop pulmonary tuberculosis, an x-ray survey of 5,000 adult admissions to fourteen general hospitals has been conducted with the cooperation of the administrators and x-ray departments of the hospitals. This study, which will be reported in detail later, revealed that 1.2 per cent of all adult admissions (excluding all known cases of tuberculosis) have pulmonary tuberculosis. In 0.5 per cent the histories contained data which might have resulted in a diagnosis of tuberculosis before the patient was discharged; in 0.7 per cent the records contained no evidence that tuberculosis was suspected. If the same conditions prevail throughout

1. The results of this study, when completed, will be published by Dr. John K. Deegan, Superintendent, Hermann M. Biggs Memorial Hospital, Ithaca, N. Y., under whose direction it is being made.

the United States, about 45,000 cases of unrecognized pulmonary tuberculosis were admitted to general hospitals last year.

As a preliminary study of workers engaged in handling foods, all the employees (1,500 in number) of a food production plant were roentgenographed. Only two cases of pulmonary tuberculosis were discovered. It is of interest that this plant is located in a county having a tuberculosis death rate of 44 per hundred thousand of population.

ECONOMIC ASPECT

In the control of tuberculosis, excluding the tubercle bacillus itself, the greatest common denominator in the problem is the almighty dollar. Although the association of tuberculosis and poverty is generally recognized, actual studies made in our service revealed some startling facts. One study of 226 consecutive patients showed that 112 were the principal wage earners of their families and 114 were dependents. Of the families in which the principal wage earner was the patient, the total family annual income exceeded $2,500 in only six instances. Of these, two had three dependents, one had five dependents, two had two dependents and the sixth had no dependents. Since the earnings of the principal wage earner of this group were terminated at the time of illness, the economic factor assumes paramount importance. Only eight of the families of the 114 who were dependents had a family income of $2,500 or more. The average number of other dependents was four.

Another study of 302 patients revealed that the average duration of their disease at the time the study was made was three years and four months. Of this group, all persons who had an income of $500 or less the last year of employment were classified as dependents.

The cost of the disease, including loss of wages, physicians' services, drugs, clinic service and hospital care—whether paid by the family, locality or state—was $5,421 for the male wage earners and $5,132 for the female wage earners. The disease cost for the dependents averaged $2,402.

On the other side of the family ledgers, the total annual family income was $2,500 or more in but 3 per cent of this total group.

The economic aspect of the problem stands out in bold relief when it is realized that a survey shows that in public tuberculosis hospitals in New York State only 4 per cent of the cost of the care of patients came from the patients or members of their families. Moreover, the experience of tuberculosis hospitals throughout the United States has revealed, in a recent survey by the American Medical Association, that only 9 per cent of all patients are able to pay for part of their care and 6 per cent for all of their care.

In addition to the foregoing, other special studies—either as a part of routine administrative procedures or as special projects—are being conducted regarding such detailed aspects of the control problem as circumstances influencing the reporting of cases of tuberculosis by private physicians, the longevity of tuberculous patients following the onset of symptoms or the diagnosis, the relative value of the various methods of treatment including collapse therapy, the significance of industrial and economic factors and their effect on the patient, the family and the community, the appraisal of various routine administrative methods used in clinics, dispensaries and tuberculosis hospitals, and the determination of significant and helpful factors favoring the rehabilitation of patients and their reestablishment as self-sustaining persons in the community.

SUMMARY

To spread tuberculosis a human being must have an open lesion. The epidemiology and the study of the control of tuberculosis present a more complex problem than almost any other of the communicable diseases for which the cause is known. The transmission of infection occurs most frequently among persons in more intimate contact with the patient who has the disease. Of all persons who become infected with the tubercle bacillus, only a small percentage develop the reinfection type of tuberculosis. Pulmonary tuberculosis is a disease primarily of adults. Environmental factors seem to have a more common influence on the development of disease than do the constitutional factors. The common denominator found in the tuberculosis problem is the almighty dollar. A vicious circle prevails between poverty and tuberculosis and tuberculosis and poverty. Before many specific factors can be individually evaluated, more information must be obtained. If, however, our present knowledge could be applied to our present and future medical and public health practices, the mass behavior of tuberculosis should be changed. The tremendous amount of needless suffering, unnecessary deaths and the enormous economic losses resulting from the disease can be appreciably reduced. They should be.

ABSTRACT OF DISCUSSION

DR. LEVERETT D. BRISTOL, New York: I was impressed by the results that have been accomplished in New York State. The reduction in the death rate over the past years from 161 per hundred thousand to 44 per hundred thousand, the fact that there are now 3.4 beds per annual death in the state of New York, and that they are finding a high percentage of cases of tuberculosis in the minimal stages are all measurable criteria of progress in that state. There is no state in the United States where there is better organization for the control of tuberculosis than in New York State, including a complete coordination of effort between local groups, county agencies, the district groups of the state department of health and the strong voluntary tuberculosis and public health committees which exist. Also, the leadership of the state department of health, through Dr. Plunkett's division, has had a great deal to do with the results accomplished. It has conceived its function not only to be one of routine service to the people of the state but also to carry on educational phases and particularly research studies. If I were to emphasize anything as to tuberculosis in industry it would be that the great majority of people are employed by smaller industries, in groups where they do not have facilities for careful examinations of applicants, periodic health examinations or tuberculosis case finding. More and more the public agency interested in tuberculosis must come to the assistance of these people and work out a cooperative program with the smaller private industries. I hope that Dr. Rice will tell us of the work that the New York City Department of Health has been doing in cooperation with some of the industrial organizations in tuberculosis case finding. In only a few of the larger industries are employees paid when they are away from their job on account of sickness. If we are to get at the economic problem of tuberculosis, it must be possible for employees in the smaller industries to be remunerated when they are away taking the cure. Dr. Plunkett has raised a question with reference to tuberculin testing of school children. He represents the official agency which has to think in terms of profitable investment of tax money. When Dr. Plunkett suggests that his own department sees little value in tuberculin testing of children, I may agree with him so long as the reference is particularly to grade school children; but with reference to high schools and college

groups it is certainly worth continuing this important work. I shall look forward to the continuation of Dr. Plunkett's studies in New York State.

Dr. Earl Morris, Hays, Kan.: As a student health director, I should like to ask two questions: First, shall I continue to give tuberculin tests in my program of case finding or should I disregard it as quite largely a waste of time and money and center on the x-ray film and fluoroscope, and perhaps a more intensive examination of the family and other contact history? Second, if I continue tuberculin testing, as I probably shall, in my program—we require hygiene of all freshmen, and as we come to the section on tuberculosis we do tuberculin testing as a routine class procedure, a piece of laboratory work . . . should there be any difference in advice given to negative and positive reactors; in other words, may my students regard the results of tuberculin tests as contributing something to their future program of personal and community hygiene?

Dr. John L. Rice, New York: For the past few years, Dr. Edwards, who is the director of the Bureau of Tuberculosis, has been carrying on an extensive case-finding program among special groups in New York City. Examples of such groups are 75,000 adults receiving home relief, about 7,000 persons in a district inhabited largely by Puerto Ricans, about 5,000 pupils in the city's high schools, and several thousand patients attending the venereal disease clinics. Altogether about 150,000 adults and young adults have been surveyed by means of paper-film x-ray examinations, and this has disclosed about 3,500 new cases of tuberculosis. It has been gratifying that in a large proportion of these cases the disease was in its early stages. Dr. Edwards is now extending this case-finding project into the industrial field—beginning with those engaged in the fur industry. This particular survey is being made at the request of the industry.

Dr. Robert E. Plunkett, Albany, N. Y.: From the standpoint of the epidemiology of tuberculosis, it must not be forgotten that tuberculosis is constantly becoming a disease of older persons and that this applies particularly to males. In 1915 in upstate New York the highest death rate in males from tuberculosis was in men between the ages of 25 and 35 years. In 1937 the peak was in the group between 55 and 64. This is quite a change over a period of twenty-two years. In eleven years in upstate New York, the average ages of patients both whose cases are reported and who died have increased by five years in males and by three years in females. This change is considerably greater than the increase in the average age of the population during the same period. In our clinic service, on the basis of two years' experience, it costs us—and it is a selected group of the population, made up of persons referred because of contact or suspicious symptoms—$1,737 to discover a case in a child under 15 years, $77 to discover a case in a person over 45, and $119 for all over 15 years of age. Dr. Morris wanted to know whether he should still use the tuberculin test. There is a definite place in this field for the tuberculin test, but before using it there should be intelligent consideration of the size and scope of the problem. If he is working in a community with a death rate of 20 or 30, he will save money by doing the tuberculin test, but if he is studying adults in a community with a death rate of 60 or 70, he will waste time and money by doing tuberculin tests. Although tuberculin still has a place, the x-ray examination is in general more useful in finding tuberculosis and is useful also in discovering other pathologic conditions in the thorax. We are using tuberculin in our normal school studies and other studies, but the thing we are opposed to in New York State is the program, which has been so popular for seven or eight years, of using the tuberculin test as the basis of case finding among school children and of stopping there. There is too little attention given to the home in which that child lives and to the economic and domiciliary factors which influence the spread of tuberculosis within the family. If a child reacts to tuberculin, the younger the child the more likely it is that the infection occurred in the home. As the child grows older, the more likelihood there is of infection outside the home. The home should be searched to make sure that the cause is not there. As far as the negative reactors are concerned, they might be followed to see how soon they become positive, and some day there may be data concerning the development of positive reactors which will be of primary significance.

RESULTS OF TREATMENT IN A PSYCHIATRIC OUTPATIENT DEPARTMENT

A FOLLOW-UP STUDY OF 166 CASES

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In this paper we present the observations made in a follow-up study of 166 patients who had been treated in the psychiatric outpatient department of the University of Chicago Clinics between July 1, 1935, and March 30, 1937. We have attempted, by means of a review of the records and follow-up interviews, to evaluate the results of treatment, to compare the original diagnoses with the diagnoses made at the time of the follow-up interviews and to relate the present study with a previous study on inpatients.[1]

METHODS AND MATERIALS

The criteria for inclusion of a patient in this study were that he had been seen originally by one of us at least one year previously to the time of follow-up and that a thorough physical and psychiatric work-up had been recorded when the patient was first seen.

Of the 206 cases reviewed, forty were discarded for the following reasons: Eighteen patients had also been inpatients and had received more intensive treatment than the others; in sixteen instances the data recorded at the time of the original interview were too few to permit conclusions to be drawn, and six patients could not be reached.

The time between the first visit of a patient to the clinic and the follow-up study ranged from one year to two and one-half years. The time in months since the patient's last visit to the clinic ranged from one to thirty. These wide ranges are explained when it is realized that a number of patients were seen on only one occasion, while others continued to make visits to the outpatient department over as long a period as eighteen months.

The sources of referral of patients were as follows: Ninety-seven were referred from other departments in the University of Chicago Clinics. Twenty-nine had been sent by their families or by friends. Twenty-four came of their own initiative. Nine were referred by outside physicians and seven by social agencies.

It will be of some interest to consider briefly certain of the statistical data shown in table 1. The 166 cases are distributed through fifteen diagnostic categories. The diagnostic criteria used in assigning cases to the various categories are those set forth by the American Psychiatric Association and the National Committee for Mental Hygiene in 1934.[2] The series is composed of 115 cases of neurosis, thirty-one of psychosis, nineteen of psychopathic personality and one of epilepsy. The

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Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the authors' reprints.

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1. Masserman, J. H., and Carmichael, H. T.: Diagnosis and Prognosis in Psychiatry: With a Follow-Up Study of the Results of Short-Term General Hospital Therapy of Psychiatric Cases, J. Ment. Sc. 84: 893-946 (Nov.) 1938.

2. Statistical Manual for the Use of Hospitals for Mental Diseases, ed. 6, New York, National Committee for Mental Hygiene, 1934.

individual diagnostic groups contain few cases, with the exception of anxiety state with twenty-nine cases, mixed psychoneurosis with forty-one cases, psychopathic personality with nineteen cases, conversion hysteria with seventeen cases, and manic-depressive psychosis with thirteen cases (all instances of depression).

Eighty of the 166 patients were male and eighty-six were female. The mean age of the group was 30.1 years. The average school grade attained by the 127 patients concerning whom information as to education was available was 10.2. Forty patients were foreign born, fifty-five were born in the United States of foreign-born parents and seventy-one were born in this country of parents who themselves had been born here. Sixty-nine patients were single, eighty-six married, four separated, five divorced and two widowed. Seventy-seven patients gave their religious affiliations as Protestant, forty-eight professed to be Roman Catholic, thirty-two were of Jewish faith and nine indicated no religious affiliations or said they had no religion.

The 100 cases were distributed throughout fifteen diagnostic groups, but only three groups contained more than ten cases, viz., anxiety state with twenty cases, mixed psychoneurosis with nineteen and conversion hysteria with eleven (table 2). Evidence of organic disease had been found in thirty-four of the 100 patients at the time of the original physical examination [3] (table 2).

RESULTS AND COMMENT

In table 2 are shown the differential symptoms in the 100 followed-up cases. Perusal of this table shows that disturbances of both somatic and mental functions were complained of by patients in all diagnostic groups. Complaints of somatic dysfunction were not confined to any one of the organ systems or sensory modalities. Likewise, disturbances of mental functions are seen to occur in all diagnostic groups, with the exceptions that delusions and hallucinations are not found among the psychoneuroses or psychopathic personalities.[4] These figures seem to indicate that most neurotic and psychotic reactions tend to be of mixed character.

The question of the relation of the somatic symptoms of neurotic and psychotic patients to the various organic systems of the body is one of great interest. Careful study showed that frequently a patient had no complaints referable to an organ system in which disease existed. For example, a patient who showed evidence of rheumatic heart disease made no complaints regarding the cardiovascular system but had numerous complaints of dysfunction in several of the other systems. On the other hand, patients with somatic complaints in whom no definite evidence of organic disease was found at the initial examination later showed positive signs of organic disease related to the original somatic complaints.

There is also, of course, the puzzling question of why the individual patient chooses the particular organic system or systems to which he refers his complaints. Fenichel,[5] in discussing this problem in relation to the field of the so-called organ neuroses, pointed out that some of the multiple determining factors are: "somatic compliance, special factors in the infantile history of the individual, a partial pregenital fixation, and the particular suitability of an organ for symbolic representation." Similarly, the tendency shown by patients to shift their somatic complaints from one system to another or to add complaints referable to another system was exemplified strikingly in our series of patients.

Our present study demonstrates clearly that a neurosis and organic disease may be present in the same patient, that a neurosis may precede or follow the development of organic disease, and that a neurosis or psychosis may mask the presence of organic disease or that the reverse of this may occur. Our observations in a previous study [1] with reference to symptoms were the same as those reported here. Comroe,[6] in a follow-up study of 100 cases of "neurosis," reached conclusions which are essentially in agreement with those we have just expressed, and he emphasized forcibly the necessity for thorough examination of neurotic patients so that the presence of organic disease will not be missed.

In our investigation of etiologic factors there were noted certain trends, which may be presented at this point. Ingestion of alcohol appeared to be a factor in six cases and the use of barbiturates in one case. Somatic disease was present in thirty-four of the 100 cases but did not play a direct etiologic role in all instances. Five patients were found to have varying degrees of mental deficiency.

Entirely apart from the deficiencies in the records, it was found most difficult to evaluate the psychologic factors concerned in the etiology, inasmuch as the importance attached to the various maladjustments shown by the patients depended on the reliability of the sources of information, the thoroughness of the psychiatric examination, and the training and personal bias of the psychiatrist who had obtained and interpreted the data. As might be expected, environmental difficulties of familial, economic, occupational, marital, religious, social or sexual nature were found to be factors. Usually the difficulties were present in more than one environmental sphere and in most cases these exogenous factors were combined with endogenous personality difficulties in producing symptoms.

When we endeavored to classify the patients as to the personality they presented before the onset of the neurosis or psychosis, we immediately encountered almost insuperable difficulties inherent in any attempt to group patients under various personality types or to ascertain what earlier sets of traits and attitudes can be correlated with the clinical pictures presented in the

3. Ten of the twenty patients with anxiety states had various organic diseases, viz., one case each of rheumatic heart disease, auricular fibrillation, central nervous system arteriosclerosis, hyperthyroidism, strabismus, multiple sclerosis, mesoangue and chronic cholecystitis and two cases of essential hypertension. Among those with conversion hysterias the following organic conditions were present: one case each of thrombosis of the right subclavian vein, essential hypertension, hypothyroidism following a previous thyroidectomy and chronic prostatitis. Four of the patients with manic-depressive depressions showed physical abnormalities, viz., two cases of uterine fibromyomas and one case each of traumatic atrophy of the left upper arm and acute gonorrheal urethritis. In the group of mixed psychoneurosis, six patients were found to have physical diseases, viz., one case each of osteomyelitis, rheumatic heart disease with nodular goiter and elevated basal metabolic rate, and uterine fibromyomas with secondary anemia. In both the group of behavior disorders and that of reactive depression a case of chronic epidemic encephalitis was included. The group of cases of psychosis with disease of the central nervous system was made up of one case of presenile psychosis, one case of tabetic dementia paralytica and one case of arteriosclerosis of the central nervous system. Two of the patients with psychopathic personality were found to have syphilis. Perhaps two other cases, which are not recorded in table 2, should be considered to present evidence of organic disease, viz., one patient with reactive depression had hemorrhoids with severe secondary anemia, while the patient with undiagnosed physchosis had obesity.

4. Attention may be drawn to the large number of cases in which complaints referable to the muscular system (sixty-seven cases) and to the gastrointestinal system (fifty-three cases) were made. Complaints referable to the sexual function (which included impotence, frigidity, ejaculatio praecox and masturbation) were made by thirty-seven patients. Among disturbances of mental functions, anxiety (seventy-four cases) and depression (fifty-three cases) were the most commonly observed symptoms. Phobias were noted in twenty-nine cases.

6. Comroe, B. J.: Follow-Up Study of 100 Patients Diagnosed as "Neurosis," J. Nerv. & Ment. Dis. 83: 679-684 (June) 1936.

various psychoses and neuroses. An excellent example of this is shown in the report by Bowman and Raymond [8] on studies of the prepsychotic personality in schizophrenic patients and in Bowman's [9] study of the personality in schizophrenia, affective disorders and dementia paralytica and in normal subjects. Among the difficulties encountered is the confusion which obtains at times as to whether certain traits are prepsychotic characteristics or early psychotic manifestations. A second difficulty is that of estimating the reliability of the information given. With only one informant it seems easy to code the personality traits of a patient, but when there are several informants, the number of traits put down as unknown or questionable increases markedly. Other considerations concern changes in diagnosis and the difficulty of having too many persons collect and evaluate the data.

The great importance of studies of the prepsychoneurotic personality has been stressed by Hinsie.[10] He information was available there seemed to be so great a mixture of traits and attitudes that it was found impossible to fit the patients into such categories. One word characterizations of personality, such as "perfectionistic," "aggressive" and "normal," were discarded, since they seemed wofully inadequate when used to describe a complex structure such as the human personality.

In our previous study of inpatients [1] we tried to estimate the degree of insight manifested by the patients and drew up definitions of various grades of insight. It has always been a difficult question to decide how much insight a patient has. Indeed, it is a moot question as to whether satisfactory criteria can be set up. In table XI of our previous paper [1] the following definitions of five degrees of insight are given:

[The patient] (1) does not consciously admit psychogenesis of illness but instinctively keeps returning to psychiatrist for aid; (2) admits psychic nature of illness but constructs vague

TABLE 2.—*Differential Symptoms in the Various Diagnostic Groups in 100 Followed-Up Cases*

		Disturbances in Somatic Functions										Disturbances of Mental Function										
		Organ Systems							Sensation													
Diagnostic Group	No. of Patients	Muscular	Gastrointestinal	Cardiorenal	Genito-Urinary	Vascular	Sexual*	General†	Skin	Special Sense	General‡	Speech	Anxiety	Depression	Suicidal Trends	Inferiority Feelings	Guilty Feeling	Delusions	Illusions and Hallucinations	Phobias	Obsessions and Compulsions	Other Disturbances§	Organic Disease Present
Simple adult maladjustment	7	3	1	1	1	0	3	3	1	0	2	0	5	4	0	1	1	0	0	2	1	0	0
Anxiety state	20	17	13	9	6	3	7	12	6	3	6	2	20	11	2	2	2	0	0	7	3	14	10
Conversion hysteria	11	6	9	6	2	2	6	7	4	4	9	2	10	5	0	5	3	0	1?	1	2	7	4
Hypochondriasis	3	1	2	1	0	0	1	2	1	0	1	1	1	3	1	1	0	0	0	2	0	2	0
Manic-depressive psychosis	6	5	2	1	0	0	2	1	0	0	0	1	2	6	5	4	0	1	0	1	1	5	4
Mixed psychoneurosis	19	14	12	2	6	1	4	13	3	2	10	0	19	10	2	1	5	0	0	6	1	15	6
Compulsive states	3	1	1	2	0	0	0	2	0	0	2	0	3	1	0	0	1	0	0	3	2	2	0
Paranoid conditions	4	2	1	1	0	0	1	1	1	0	3	0	2	2	0	0	1	4	1	0	0	3	3
Behavior disorders	4	2	1	1	0	0	2	0	0	2	1	1	3	0	0	1	1	0	0	1	0	2	1
Psychopathic personality	9	5	2	1	2	0	6	4	2	1	3	1	4	6	2	3	1	1?	0	3	1	8	2
Psychosis with C. N. S. disease	2	2	2	0	1	0	1	2	0	0	0	0	1	1	1	0	0	0	0	0	0	1	1
Reactive depression	3**	3	2	0	0	1	2	2	0	0	0	1	1	3	0	1	0	0	0	0	0	1	1
Schizophrenia	6	4	3	0	1	0	2	3	1	1	3	1	3	0	0	0	2	3	?	1	0	6	0
Undiagnosed psychosis	1	0	1	1	0	0	1	0	1	1	1	1	1	1	1	0	0	1	0	1	1	1	0
Epilepsy	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Totals	100	67	55	27	19	8	37	53	20	14	43	11	74	53	14	20	17	12	4	29	12	77	34
Column number		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23

* Includes impotence, frigidity, ejaculatio praecox, exhibitionism, etc.
† Includes headache, insomnia, etc.
‡ Includes vertigo, pain, paresthesias, etc.
§ Includes tension, retardation, excitement, amnesia, irritability, etc.
‖ Includes one case of multiple sclerosis.
¶ Includes one case of chronic epidemic encephalitis.
# Incluses one case of presenile psychosis, one case of taboparesis and one case of C. N. S. arteriosclerosis.
** Includes one case of chronic epidemic encephalitis.

pointed out that a knowledge of the personality previous to the onset of neurosis is missing in the psychiatric literature, whereas the term "prepsychotic personality" is in the everyday language of the psychiatrist. This reminds us of an additional difficulty in studies of personality in neuroses and psychoses, namely, the lack of studies on so-called normal controls. Bowman [9] referred to this as a valid criticism and attempted to meet this objection by studying a group of normal controls for personality traits.

We were not satisfied with the results of our efforts to classify the 100 followed-up cases under various personality "types." It was possible to classify some patients by such a term as "schizoid," "cyclothymic" or "shut-in." In the majority of cases in which adequate rationalizations as to "nerve strain from overwork," "nervous breakdown," etc.; (3) admits the relationship of emotional difficulties to his illness but insight mainly intellectual, and tendency to blame others for inner conflicts persists; (4) realization of the significance and personal origin of his past emotional conflicts but rejection of insight that would occasion severe narcissistic trauma; (5) deeper insight into ambivalence and inner conflicts, including those arising from erotic urges and unjustified aggressive drives previously repressed.

The definition of the fourth degree might be said to be the point at which real insight begins, while what is defined as the fifth degree constitutes a close approximation to the self understanding that is the goal of all psychotherapists for their patients but which probably is not readily attainable by other means than psychoanalysis. The facts and comments just noted, together with the inadequacy of our records, seem to preclude any conclusions regarding the degree of insight in the present series of patients.

As in our previous study of inpatients,[1] we wished to examine the prognosis assigned to patients and to

8. Bowman, K. M., and Raymond, A. F.: A Statistical Study of the Personality in Schizophrenic Patients, Schizophrenia, A. Research Nerv. & Ment. Dis., Proc. **10**: 48-74, 1931.
9. Bowman, K. M.: A Study of the Prepsychotic Personality in Certain Psychoses: The Biology of the Individual, A. Research Nerv. & Ment. Dis., Proc. **14**: 180-210, 1934.
10. Hinsie, L. E.: Concepts and Problems of Psychotherapy, New York, Columbia University Press, 1937, p. 101.

compare it with their actual status at the time of follow-up. On the basis of the information in the case records, we could estimate prognosis in only three degrees, namely, that the patient was expected to get worse, to show no change or to show improvement. On this basis we estimated that thirty-one of the 100 patients would remain in statu quo or get worse and that sixty-nine would show varying degrees of improvement. As far as the information was available, we tried to determine prognosis from several interrelated considerations.[11] On comparison of the results at the time

An attempt to evaluate the effectiveness of any single therapeutic method could not be successfully carried out, since more than one method was used in almost all cases. The methods of treatment employed include all indicated medical and surgical measures, sedation, environmental readjustments, interviews with psychiatric social workers, and superficial psychotherapy such as reassurance, suggestion and persuasion. Institutional care was recommended for some of the psychotic patients. In three cases a formal psychoanalysis was advised. Owing to the small number of cases in the

TABLE 3.—*Changes in Symptoms and General Status After One Year or More of Follow-Up Study*

Diagnostic Group	No. of Patients	Change in Symptoms: Somatic: Worse	Somatic: No Change	Somatic: +1	Somatic: +2	Somatic: +3	Somatic: +4	Somatic: +5	Mental: Worse	Mental: No Change	Mental: +1	Mental: +2	Mental: +3	Mental: +4	Mental: +5	General Status: Died	General Status: Institution	General Status: Worse	General Status: No Change	General Status: +1	General Status: +2	General Status: +3	General Status: +4	General Status: +5	Number of Cases Showing 2+, 3+ or More Improvement: 2+	Number of Cases Showing 2+, 3+ or More Improvement: 3+
Simple adult maladjustment	7	0	0	0	2	3	1	1	0	0	0	2	2	2	1	0	0	0	0	0	2	3	1	1	7	5
Anxiety state	20	2	4	1	5	3	5	0	1	7	2	3	4	1	1	0	1	2	4	5	3	4	2	0	9	0
Conversion hysteria	11	0	1	3	5	0	1	1	1	3	2	2	2	1	0	0	0	1	2	2	4	1	1	0	6	2
Hypochondriasis	3	0	1	0	1	1	0	0	0	1	0	1	1	0	0	0	0	0	1	0	0	2	0	0	2	2
Manic-depressive psychosis	6	2	0	1	2	0	0	1	2	0	0	1	1	1	1	0	2	2	0	0	1	1	2	0	4	3
Mixed psychoneurosis	19	2	3	4	4	1	2	1	4	3	3	3	2	4	0	0	1	2	3	5	3	2	4	0	9	0
Compulsive states	3	1	1*	0	0	0	1	0	0	1	0	1	0	0	0	0	2	2	0	1	0	0	1	0	1	1†
Parano'd conditions	4	2	1	0	0	0	0	1	2	0	1	0	1	0	0	0	2	2	0	1	0	0	1	0	1	1
Behavior disorders	4	0	3†	0	0	0	0	1	0	1	0	0	0	2	1	0	0	0	0	1	0	0	2	1	3	3†
Psychopathic personality	9	1	2‡	2	0	3	1	0	1	3	1	2	2	0	0	0	1	1	1	3	1	2	1	4	0	3‡
Psychosis with C. N. S. disease	3	3	0	0	0	0	0	0	3	0	0	0	0	0	0	2	1	3	0	0	0	0	0	0	0	0
Reactive depression	3	0	0	1	1	0	1	0	0	0	0	2	1	0	0	0	0	0	0	1	1	1	0	0	2	1
Schizophrenia	6	1	2	0	3	0	0	0	1	1	2	0	1	0	0	0	2	1	2	2	0	1	0	0	1	1
Undiagnosed psychosis	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	1
Epilepsy	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	1
Totals	100	14	28§	12	24	12	12	6	17	21	11	15	20	11	4	2	13‖	16	14	19	15	20	14	2	51	35
Column number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26

Code: Change in Symptoms

Worse	(col. 2 and 9)	Symptoms worse (−1 to −5).
No change	(col. 3 and 10)	Symptoms unchanged.
+1	(col. 4 and 11)	Slight or intermittent symptomatic improvement.
+2	(col. 5 and 12)	Greater improvement but extent variable, with tendency to form other symptoms.
+3	(col. 6 and 13)	More stable improvement with recurrence of symptoms only under stress.
+4	(col. 7 and 14)	Disappearance of presenting symptoms with a residuum of only a few minor complaints.
+5	(col. 8 and 15)	Complete disappearance of symptoms, with no return under severe emotional and environmental stresses.

General Status

Died	(col. 16)	Death
Institutionalization	(col. 17)	In public or private mental hospital.
Worse	(col. 18)	General status worse (−1 to −5).
No change	(col. 19)	Remains in statu quo.
+1	(col. 20)	Slight and variable improvement in somatic complaints, mental symptoms or environmental difficulties.
+2	(col. 21)	Definite improvement in one or more of these spheres, but some complaints still present and general adjustment at a somewhat lower level than previous to onset of the patient's illness.
+3	(col. 22)	Recovery from presenting symptoms with satisfactory resumption of occupational, familial and other duties unless subjected to severe stress.
+4	(col. 23)	Complete recovery from presenting symptoms with apparent capacity to maintain this even under severe stress.
+5	(col. 24)	Complete and stable recovery with marked improvement in capacity for personal and social adaptations.

* One patient had no somatic symptoms.
† Two patients had no somatic symptoms.
‡ One patient had no somatic symptoms.
§ Four patients had no somatic symptoms.
‖ Several patients had been discharged.

of follow-up examination with the prognosis as previously estimated, it was found that we were correct in eighty-seven cases. However, this figure cannot be accepted at face value, since under the heading "improvement" we had included all degrees up to complete recovery.

In table 3 are shown the degrees of change in somatic and mental symptoms and an estimate of the general status of the patients who were observed at the time the follow-up study was made. These were graded on the basis of the definitions set forth at the bottom of the table.

11. Criteria for determination of prognosis were (*a*) an evaluation of the patient's constitutional makeup, both physical and mental; (*b*) the nature and intensity of previous neurotic or psychotic reactions; (*c*) the type, duration and severity of the presenting illness and the depth of emotional reactions, and (*d*) the results of the various forms of therapy which had been used previously, including the availability of an extramural milieu devoid of occupational, familial, social, economic or sexual stresses beyond the capacity of the patient to withstand (see our previous paper on inpatients [1]).

individual diagnostic groups, no conclusions of statistical significance can be drawn regarding the results in any one diagnostic category.

A study of table 3 reveals the following facts: One death and one suicide occurred in our series. Three patients were psychotic with disease of the central nervous system. Thirteen patients had received institutional care, though several had been discharged previously to the time of the follow-up study. Of forty-nine patients who showed little or no improvement, sixteen were worse, fourteen had shown no change and nineteen showed very slight improvement. Fifty-one patients showed a degree of improvement graded plus 2 or better. Those who showed a degree of improvement of plus 3 or better numbered thirty-six. Only two patients were considered to show complete and stable recovery, although fourteen other patients gave evidence of apparent recovery.

Inspection of the results attained in the seventy cases of neurosis, the twenty cases of psychosis and the nine of psychopathic personality reveals that improvement of plus 2 or better was shown by thirty-nine neurotic patients, seven psychotic patients and four subjects with psychopathic personalities.

At the follow-up study it was found that in the interval since the last visit six patients had developed complaints which could be attributed to toxic or organic factors which had not been apparent at the time of the original physical examination. In three of the cases the original symptoms might, in retrospect, be considered as having pointed to the possibility of organic disease. In the three remaining cases the organic changes appeared to be entirely new developments (table 4).

The figures on improvement rates agree fairly closely with those reported by us for inpatients.[1] In the inpatient study, fifty-four patients showed 2 plus improvement and thirty-eight patients showed 3 plus

The difficulties of evaluating the effects of therapy in neuroses and psychoses, particularly psychotherapy, are enormous. In the first place, standard criteria of recovery are lacking. There is a tendency to use terms such as "improved," "recovered" and "well" without any attempt at definition. The same terms are used by different authors to denote varying degrees of improvement. To utilize the disappearance of the outspoken symptoms as a sign of cure is, as a rule, not justifiable. What appears to be improvement early in the course of treatment may be simply the result of the confidence the patient has developed in the physician. When this "transference" is disturbed, the patient's symptoms may all recur. The method by which the follow-up data are obtained is another important consideration. As Romano and Ebaugh [17] pointed out, "it is not possible to speak of cure, remission, partial recovery or improvement on the basis of statements made by the family, friends or even patients." They also emphasized the defects of prognostic studies when the social investiga-

TABLE 4.—*Changes in Diagnosis After One Year or More of Follow-Up Study*

Original Diagnostic Group	Number of Patients	Changed Diagnosis: Simple Adult Maladjustment	Anxiety State	Conversion Hysteria	Hypochondriasis	Manic-Depressive Psychosis*	Mixed Psychoneurosis	Compulsive State	Paranoid Conditions	Behavior Disorder	Psychopathic Personality	Psychosis with C. N. S. Disease	Reactive Depression	Schizophrenia	Undiagnosed Psychosis	Epilepsy	Psychosis with Psychopathic Personality	Number Changed	Number Unchanged	Organic Disease (Previously Undiscovered)
Simple adult maladjustment	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	7	0
Anxiety state	20	..	..	1	..	1	3	..	..	..	1	1	..	..	..	..	..	7	13	0
Conversion hysteria	11	..	..	..	..	..	2	..	..	..	..	..	1	1	..	..	..	4	7	1
Hypochondriasis	3	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	2	1	1
Manic-depressive psychosis	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	0	0
Mixed psychoneurosis	10	..	1	..	1	..	..	..	..	..	..	..	1	..	..	..	..	3	10	1
Compulsive states	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	3	0
Paranoid conditions	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	4	0
Behavior disorders	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	4	0
Psychopathic personality	9	..	..	..	..	1	..	1	..	..	..	..	..	1	..	..	..	3	6	1
Psychosis with C. N. S. disease	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	3	0
Reactive depression	3	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	2	0
Schizophrenia	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	6	0
Undiagnosed psychosis	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	0	0
Epilepsy	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	0
Totals	100	0	1	2	1	3	6	1	0	1	1	1	1	3	0	0	1	22	78	4
Column number		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

* All cases of depression.

improvement. Skottowe and Lockwood,[12] in a study of the fate of 150 psychiatric outpatients, found that about 35 per cent were "recovered" or "much improved," whereas 65 per cent achieved only slight or moderate improvement. Yaskin [13] reported recovery in forty-one and improvement in forty-one of one hundred patients with neurosis. Ross [14] reported 45 per cent of 1,186 patients as well and 25 per cent as improved one year after discharge. Three years after discharge the figures for 421 patients were 40 per cent well and 10 per cent improved. After five years 34 per cent of 290 patients were well and 6 per cent improved. Luff and Garrod [15] reported that 65 per cent of 500 patients were improved or much improved on discharge and that 55 per cent showed these degrees of improvement at follow-up examination three years later. Landis [16] gave the number of patients discharged annually as recovered or improved per hundred admitted to state mental hospitals in the United States from 1926 to 1933 as forty.

tion and questionnaire methods were used, and the necessity for a personal interview with the patient by the psychiatrist. The Five Year Report (1932-1937) of the Chicago Institute for Psychoanalysis [18] stresses the fact that the final judgment of the results of treatment must rest mainly with the physician who carried out the treatment.

Malamud and Render [19] quite properly insisted that a follow-up period of at least five years is essential to obtain reliable results in studies of the course and prognosis in schizophrenia. They found that the percentage of "complete recoveries" is much lower when follow-up study is done at least five years after discharge than it is when the study is made after a shorter period, e. g., one year. The results reported by Ross [14] for the neuroses tend to confirm this opinion.

A serious handicap in the evaluation of the results of psychotherapy is that all too frequently the actual therapeutic measures have not been clearly defined; more

13. Luff, M. C., and Garrod, M.: The After-Results of Psychotherapy in 500 Adult Cases, Brit. M. J. 2:154-59 (July 13) 1935.
16. Landis, C.: A Statistical Evaluation of Psychotherapeutic Methods, in Hinsie, L. E.: Concepts and Problems of Personality, New York, Columbia University Press, 1937.
17. Romano, J., and Ebaugh, F. G.: Prognosis in Schizophrenia, Am. J. Psychiat. 98:583-596 (Nov.) 1938.
18. Chicago Institute for Psychoanalysis, Five-Year Report (1932-1937), Chicago.
19. Malamud, William, and Render, Norman: Course and Prognosis in Schizophrenia, Am. J. Psychiat. 95:1039-1057 (March) 1939.

often than not they consist of a mixture of psychotherapeutic and other methods. This state of affairs has been mentioned by various authors (Curran,[20] Luff,[21] Mapother [22]). Another difficulty is the failure to make careful selection of patients before beginning psychotherapy (Curran [20]). Since there tend to be a difference in the criteria of selection of patients for psychotherapy and also decided variation in the duration of treatment and in the methods employed, it is not justifiable to compare closely the results reported by the different clinics. We have previously pointed out [1] that any estimate of the effects of a therapeutic procedure must depend primarily on its aims and standards. For example, directly to compare the results in a series of patients treated as were the patients reported in the present study with the results obtained by formal psychoanalysis [10] is, strictly speaking, not permissible. Full recognition must be accorded to the following facts: Our patients were probably not selected as carefully as are the patients for psychoanalysis; the treatment they received was not as intensive; our criteria for improvement (table 3) were less severe and were based to a greater degree on overt social adjustments, while the criteria used to estimate improvement of psychoanalytic patients were far more searching and exacting and based on changes of a stable nature in the inner organization of the personality.[10]

In table 4 are recorded the changes in diagnosis made at follow-up examination. For twenty-two patients a change in diagnosis was made. A new diagnosis was based essentially on reconsideration of the original data and of the clinical observations made during the time the patient was under treatment. In five instances the changes made had been foreshadowed by the secondary diagnosis made when the patients were originally classified.

The problem of change of diagnosis has been discussed by Bowman [9] in his study of the prepsychotic personality and also by Bowman and Raymond [8] in their paper on the personality of the schizophrenic patient. In the former paper Bowman pointed out that incorrect diagnosis may be a source of error in studies of the prepsychotic personality. He cited the necessity he found for reconsideration of original diagnoses made at the Boston Psychopathic Hospital in ninety-one of 241 cases in which the condition had been differently diagnosed at other state mental hospitals. In about 40 per cent of the cases he agreed with the new diagnosis. It should be remembered, however, that the patients were under observation for relatively few days at the Boston Psychopathic Hospital, while an observation period of a month or more was available at the state hospitals. It is unquestionable that the longer period of observation is an aid in correct diagnosis. Another factor which helps to explain changes in diagnosis at various hospitals is that there may be considerable differences between the hospitals in the way they apply the standard terminology in classifying patients. This whole topic has been thoroughly discussed by Wilson and Deming [24] in a statistical study of psychiatric diagnosis in Massachusetts State Hospitals in 1925 and 1926. These authors found that there was disagreement between the diagnoses made at the Boston Psychopathic Hospital and those made at other state hospitals in 42 per cent of the cases or, if the undiagnosed cases are discarded, in 34 per cent. In our previous paper on inpatients [1] there was a change in the diagnosis made on discharge from the hospital in forty-one of the 100 cases in which the patients were rechecked at least one year after discharge.

The number of changes in diagnosis in the present study (twenty-two) is in marked disagreement with the forty-one changes of diagnosis made on inpatients.[1] This fact raises a number of questions. In the first place, it must be pointed out that there were seventy cases of psychoneuroses in the present study, while in the previous study there were only thirty-two. Moreover, a diagnosis of mixed psychoneurosis was made in nineteen cases in this study as compared with only six in the former study. Other possible factors may reside in the fact that the review of diagnosis in the present study was made in each case by the psychiatrist who originally saw the patient, as well as in the circumstance that, of the 100 patients followed up in the present study, sixty-four were seen by one of us and thirty-six by the other.

SUMMARY AND CONCLUSIONS

One hundred patients who had been studied in the psychiatric outpatient department of the University of Chicago Clinics were examined again in a follow-up interview at least one year after the time of their original visit to the clinic in an attempt to evaluate the results of treatment and to compare the original diagnoses with the diagnoses at the time of follow-up.

The main observations and conclusions are as follows:

1. Disturbances of both somatic and mental functions were complained of by patients in all diagnostic groups. Complaints of somatic dysfunction were not confined to any one of the organic systems or sensory modalities. The various disturbances of mental function occurred in all diagnostic groups, with the exception that delusions and hallucinations were not associated with the psychoneuroses or psychopathic personalities. A tendency for neurotic and psychotic reactions to be of a mixed character seems to be indicated by these observations.

2. Fifty-one of the 100 followed-up patients showed a degree of clinical improvement graded as 2 plus or better; i. e., they showed, at the minimum, definite improvement in one or more of the states listed as somatic complaints, mental symptoms or environmental difficulties, though some complaints still persisted. Thirty-six patients showed an improvement graded as 3 plus or better at the follow-up study. By "3 plus" is meant that the patient recovered from presenting symptoms with satisfactory resumption of occupational, familial and other duties unless subjected to severe stress. These figures compare favorably with the results reported by other authors and indicate the usefulness of "superficial" methods of psychotherapy in the treatment of psychiatric outpatients.

3. The necessity for careful and thorough recording of data relating to such topics as heredity, early behavior traits, personality, onset of present illness, etiology, prognosis, insight and diagnosis at the time of the original investigation of the patient's neurosis or psychosis seems readily apparent as a result of this study. In addition, the terms used in connection with all of

20. Curran, Desmond: The Problem of Assessing Psychiatric Treatment, Lancet 2: 1005-1009 (Oct. 30) 1937.
21. Luff, M. C.: Assessment of Psychiatric Treatment, Lancet 2: 1103 (Nov. 6) 1937.
22. Mapother, Edward, in discussion on Good, Thomas S.: Brit. J. M. Psychol. 9: 36 (June) 1929.
24. Wilson, E. B., and Deming, J.: Statistical Comparison of Psychiatric Diagnosis in Massachusetts State Hospitals During 1925 and 1926, Bull. Massachusetts Dept. Ment. Dis. 11: 6-19 (Oct.) 1927.

the topics just noted require careful definition before one embarks on any investigation of them.

4. The need of further studies of the neuroses as regards personality, the course of the illness and the results of various forms of treatment is emphasized by our experiences in this study and by the reports in the literature.

ABSTRACT OF DISCUSSION

DR. LLOYD H. ZIEGLER, Wauwatosa, Wis.: The authors are to be praised for attempting to follow psychiatric outpatients with the aim of evaluating the effects of therapy. They have been frank in emphasizing the many difficulties encountered which tend to detract from any substantial conclusions. What might have happened to an equal number of similar patients without any medical help whatever is a suggested control study which might modify their conclusions somewhat. All of us have seen a psychosis completely camouflage unrelated, serious disease of the body, and conversely we have seen a psychosis mimic serious disease of the body, much to the chagrin of physicians. The pattern that psychiatric disease assumes has embryonic roots, so to speak, in the psychobiology of the person. It is for this reason that psychobiology from a basic science standpoint is as important as histology. This means much more than detection or study of some neurotic traits of childhood. It means an appraisal of basic attributes and growth. A person develops variable degrees of stability between his external and his internal environment. The tendency to misinterpret either of these may result in a psychosis or neurosis. A psychosis and neurosis are not mutually exclusive and too much good effort has been expanded in trying to establish their artificial boundaries in an arbitrary way, when in reality all important have been the subtle forces, in which cause and effect are indistinguishable, which have changed the person or rendered him disabled. We are gradually learning that words often conceal quite as much truth as they reveal. Part of the truth is as damaging as a falsehood. This seems particularly apropos in using words such as "personality types," "diagnostic nomenclature," "recovery," "prognosis," and a host of other terms. But we can in a crude way study man and animals too in some fundamental ways. Energy, activity, emotions, interests, man's facility with symbols in thought, memory or imaginery—all these deserve understanding that we may know how man makes every conceivable type of adaptation, whether socially approved or not. Prognosis means to know beforehand. Experience will teach one that certain combinations of symptoms and signs usually disappear, while others do not. The criterion of being able to or having returned to accustomed occupation is a practical goal against which to evaluate prognosis in our work. Other criteria obtain, such as living outside a hospital, or return to preillness status, to be self supporting, to survive or to get along. The integrity of psychiatry will be furthered if psychiatrists give adequate attention, as the authors have done, to somatic as well as psychic aspects of personality function.

DR. WILLIAM NELSON, St. Louis: I think this paper rather illustrates the fact that we cannot classify mental illnesses accurately even after a long period of study in many instances and that, as far as present terminology is concerned, it does not answer the purpose adequately. I think also that the question of mental illness and the manifestation, as one sees it at different periods of the manifestation of it, is bound to shift in symptomatic manifestation. In other words, we shall frequently see psychoneurotic manifestations along in the course of more frankly organized mental states, and so, when it comes to a question of determining the nature of the disease from the basis of the manifestation at any one particular phase of it, it is very difficult to do. In the first place, we have multiple manifestations; in other words, we do have a mixed personality and the manifestation that occurs in the illness of the individual is going to be largely in pattern form similar to the reactions that the individual has engaged in in his normal life I wish it were possible in my own reasoning to be able to state a justification for the work that I do. One of the most difficult things in practice is to be able to see who has improved and who has not. After all, the crucial test depends on social adjustment. Now that is bound to be manifest in various sources and, depending on the breadth of experience of the individual, will be the possibility of evaluating his usefulness. The individual who has rather multiple relationships and does not retreat into some protected relationship is bound to be the one to whom this kind of comparison is going to apply more critically than to the individual who lives in a protected environment. The question then of evaluating treatment is largely open to dispute. I know of no way whereby the results of such treatment can be actually evaluated.

DR. WALTER FREEMAN, Washington, D. C.: I noticed in the tables that, of twenty cases of anxiety neuroses, ten were associated with some organic disease. Is this to be interpreted as a chicken-and-egg problem? Which came first, the neurosis or the organic disease? According to these statistics it would seem that the anxiety neuroses should be particularly investigated on account of the frequent concurrence of organic disease.

DR. U. G. DARLING, Chicago: The title of the paper is "Results of Treatment in a Psychiatric Outpatient Department," and the paper dealt principally with the resultant change in diagnosis. I wonder what type of treatment was used to bring about the change in certain individual cases, or is this just a report of a gradual, progressive change that came about through time and observation? I note also that it said "Relative to the associative qualities of somaticopsychic relationships due to the derangement of the autonomic system." It appears to me that many times we can arrive at an earlier diagnosis if we study carefully the autonomic reflex psychic disturbances rather than just simply analyzing the psychic.

DR. H. T. CARMICHAEL, Chicago: Dr. Ziegler raised the question as to what would have happened in a control series of cases in which no treatment was given. Of our series of 166, thirty-seven of the patients made only one visit to the clinic and received no treatment other than the psychotherapeutic effects which are inherent in any initial psychiatric interview. We compared the results in these patients with the results in patients who had made repeated visits to the clinic and found that the results were not nearly as good in the former group as in the latter. With regard to Dr. Nelson's comments, it was not our intention to imply that inadequacy of personnel led us to get these results. I do not feel that is the point at issue at all. I agree with him that we can justifiably raise questions about the adequacy of our present system of psychiatric nosology. As to Dr. Freeman's question about the twenty patients with anxiety states of whom ten showed evidences of organic disease, we were not able to decide which came first. Sometimes we felt that they coexisted; at other times we felt that one came first and the other followed, but we could not be sure and we do not feel ourselves in a position to make any flat statement in that regard. Dr. Darling is right in picking out the fact that our title emphasizes results and that we talk perhaps a little more about some other things than we talk about results. What we had in mind was to emphasize the great difficulties that are encountered by any one who attempts to make a study of results of psychiatric treatment. We did make a statement as to the various types of treatment used, but there were so many that we felt we could not evaluate any method individually. We used all the indicated medical and surgical measures and also all the superficial psychotherapeutic methods. We did not make any definite attempt to investigate the autonomic nervous system as such, but in our general investigation of these patients we took it into consideration.

Hugh Owen Thomas.—Now Hugh Owen Thomas was the son of a bone-setter who practiced in the same district of Liverpool in which his son afterwards lived and practiced. Moreover, Evan Thomas, the father, was the seventh bone-setter in lineal descent, the previous six having been farmers in Anglesey who also practiced the art of dealing with injuries. There is no doubt that they were held in high esteem, for one evening Sir Robert Jones showed me a series of cuttings from old newspapers extolling the services rendered by various generations of this family, and their virtues have been recorded in Welsh song.—Power, Sir D'Arcy: British Masters of Medicine, Baltimore, William Wood & Co., 1936.

BOTULISM: DEMONSTRATION OF TOXIN IN BLOOD AND TISSUES

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The diagnosis of botulism is often difficult when the disease occurs in isolated instances. It is made largely on the history and the physical examination, confirmed whenever possible by the demonstration of the organism or toxin in the source of poisoning. In fatal cases even necropsy gives little pathognomonic evidence of this disease, although Schwarz [1] has recently called attention to certain histologic appearances in the central nervous system which he thinks may be specific of botulism. The demonstration of toxin in the blood or tissues in suspected cases, apart from the demonstration of Clostridium botulinum, should be of value in the diagnosis of the disease but as far as can be determined has not been successfully accomplished in this country.

It is generally believed that the amount of botulinus toxin necessary to produce symptoms in the patient is so minute as to preclude its detection in the blood. However, scattered attempts with variable results have been made in the past. Kob (1905) is quoted as having been the first to observe that botulinus toxin can be demonstrated in the patient. He succeeded in doing this with the blood of a child nine days after intoxication. Other European workers have found the toxin in the blood serum up to the twenty-fifth day. Bergman, Insulander and Lindblad [2] reported an outbreak of four nonfatal cases of botulism with characteristic symptoms of moderate degree. Botulinus toxin was demonstrated in the blood serum in two of these cases on the seventh day of illness and in the other two on the tenth day. Negative results were obtained, however, with the blood serum of the first two patients on the tenth day, after antitoxin (50 and 100 cc.) had been administered on the seventh day. The source of the toxin could not be demonstrated but they concluded that the poisoning was due to the ingestion of salted fish. Longo [3] recently reported that the toxin was apparently demonstrated in the blood serum of a patient ill four days, by guinea pig injection.

In the American literature the only reports on this aspect of the subject have dealt with unsuccessful attempts to demonstrate the toxin in the blood of patients. Lindsay, Newman and Hall [4] reported two fatal cases in which blood taken twenty minutes after death failed to show the presence of toxin when injected into guinea pigs in amounts of 1 cc. These investigators state that Glassman has in experimental animals demonstrated botulinus toxin in liver extracts. They say that this has never been adequately tested as a means of postmortem diagnosis in man but should be tried whenever possible.

From the laboratories of the Los Angeles County Hospital and the departments of pathology and bacteriology of the University of Southern California School of Medicine.

1. Schwarz, G. A.: Poliomyelencephalomyelitis Due to Botulism, J. Nerv. & Ment. Dis. 86:1-23 (July) 1937.
2. Bergman, R.; Insulander, S., and Lindblad, V.: Serologically Verified Epidemic, Acta. med. Scandinav. 64:1 496-516, 1935.
3. Longo, D.: Serologic Test for Diagnosis: Value in Differentiating from Epidemic Encephalitis, Policlinico (sez. prat.) 43:1355-1362 (July 27) 1936.
4. Lindsay, R. B.; Newman, J. R., and Hall, I. C.: An Outbreak of Botulism in Wyoming, J. A. M. A. 108:1961-1964 (June 5) 1937.

REPORT OF CASES

Three fatal cases are here presented in which the botulinus toxin was demonstrated in tissue extracts in all three and in the antemortem blood of one:

CASE 1.—B. A., a Mexican laborer aged 39, entered the Los Angeles County Hospital May 2, 1938, with the history of refusal to talk. Because of a long past history of epilepsy with psychosis the first impression was that of hysteria, but the possibility of a foreign body in the throat was to be ruled out.

Physical examination, including laryngoscopy, was apparently negative. Within the next few hours the patient became stuporous and was found dead seventeen hours after entry and forty-seven hours after onset of symptoms.

The gross and microscopic postmortem examination gave essentially negative results except for marked hyperemia of the kidneys and partial pulmonary atelectasis.

Dr. Cyril B. Courville made the neuropathologic examination and reported the finding of multiple hemorrhages, cortical and in the perivascular gray matter, with congestion of the small vessels, with diffuse acute changes of the small pyramidal cells of the cortex.

No etiologic diagnosis was apparent eighteen hours after autopsy but information was available that the father of the deceased was showing similar symptoms. This aroused the suspicion of botulism poisoning as a probable diagnosis for both patients and investigation was immediately started in an effort to (1) disclose any possible source of contamination of food and (2) to demonstrate, if possible, the toxin in the deceased and in the living patient.

Although a thorough investigation was made by the public health authorities, the source of the toxin could not be determined. In investigating the possibility of active toxin in the organs of the deceased twenty hours after necropsy and twenty-six hours after death 50 Gm. of liver was triturated and extracted with 50 cc. of physiologic solution of sodium chloride; 1 cc. of this extract was injected intraperitoneally into each of two guinea pigs, one protected with 0.5 cc. of mixed antitoxin (A and B). After thirty-six hours the unprotected guinea pig developed experimental botulism and died forty-two hours after injection. The protected guinea pig appeared normal at this time but suddenly died a few hours later without the development of any signs of botulism. Graded doses of this extract, when injected into mice several days later, gave conflicting results, the evidence being suggestive but not conclusive.

CASE 2.—J. A., the 78 year old father of the first patient, became ill twenty-four hours after the onset of his son's symptoms. On admission his rectal temperature was 99 F., pulse rate 126 and respiratory rate 18 per minute. He was conscious and in no apparent pain but was having difficulty in breathing and swallowing and was able to answer questions only by nodding his head. The neck was not stiff and the pupils reacted to light, but paralysis of the internal rectus on the right was evident, as well as paralysis of the eleventh and twelfth cranial nerves and weakness of the intercostal muscles. The heart tones were normal. The blood pressure was recorded as 190 systolic, 120 diastolic. The blood Wassermann and Kahn reactions were negative. Although apparently in a terminal condition the patient was given 10,000 units of mixed botulism antitoxin (A and B) intravenously. Respirations ceased five hours after admission, the patient remaining alive in a Drinker respirator for another hour and dying six hours after entry and sixty hours after the onset of symptoms.

Blood collected at the time of admission to the hospital prior to antitoxin administration was tested for the presence of botulinus toxin in the following manner: Ten mice, five of which had been previously injected (fifteen minutes) with botulinus antitoxin (A and B) were injected intraperitoneally with 0.5 cc. of the citrated blood. At the end of thirty-six hours one unprotected mouse died and the remaining four showed symptoms of experimental botulism, viz. shallow breathing, muscular spasms, especially of the abdominal muscles, and later paralysis of the hind limbs and prostration. Three mice died in forty-eight hours and one sixty hours after injection. All of the protected mice survived without symptoms.

Necropsy in the second case was performed nineteen hours after death. Apart from arteriosclerotic changes consistent with the patient's age, the gross appearance of the viscera and tissues was similar to that of the first patient, with moderate hyperemia throughout, particularly in the meninges and kidneys.

Dr. Courville reported that the brain showed acute congestion with possible meningovascular syphilis.

Postmortem laboratory study in this case was more definite and enlightening. Clostridium botulinum was obtained post mortem on culture of stool and tracheobronchial secretions. Triturated liver extracted with saline solution yielded botulinus toxin, type A, as proved by mouse injections.

Case 3.—R. C., a man aged 32, a Mexican, entered the hospital Feb. 6, 1939, with a three day history of dizzy spells, generalized weakness, sore swollen tongue and inability to talk. The patient was mentally alert. The rectal temperature was 99.2 F., the pulse rate 110 and the respiratory rate 24. No ocular disturbance was noted. The only positive manifestation was a reddened pharynx.

Twelve hours after entry the patient showed symptoms of respiratory failure and died within forty-five minutes.

Twelve hours after death an autopsy was performed by Dr. George Fein. The pathologic changes were confined to pulmonary atelectasis and moderate meningeal and visceral congestion. Cultures of the gastrointestinal tract and various organs were negative for Clostridium botulinum. Blood serum and spinal fluid in doses up to 1 cc. were injected into mice with negative results. However, a saline extract of triturated liver when injected into mice in doses of from 0.5 to 1 cc. produced experimental botulism with death in thirty hours with the larger dose and more than thirty hours with the smaller. Protected mice showed no symptoms.

Additional history was later available, indicating that on February 2 the patient had eaten one fig, which was home canned, and remarked that it was sour. The remaining figs had been discarded and therefore were not available for study.

In three recent nonfatal clinical cases seen in this hospital, circulating toxin could not be demonstrated. The attempts were made on the day of diagnosis, these being the third, fifth and eleventh day of illness respectively. The source of poisoning was traced to home canned string beans in two separate cases. Material was not saved for study but chickens partaking of the discarded food in both instances developed fatal limberneck and were in turn destroyed. No source could be determined in the remaining case.

COMMENT

The demonstration of toxin in the blood of one and in the tissues in all three of our fatal cases was of particular value, since efforts to find the source of poisoning were unsuccessful. Toxin was extracted from the liver and proved by animal inoculation in each of the fatal cases twenty-six, nineteen and thirty-seven hours respectively after death. Knowledge of the relative affinity of the toxin for the various organs would have been desirable. In case 3 attempts to determine this were unsuccessful because of changes in the material due to delay (eighty-five hours).

Of our three fatal cases a clinical diagnosis of botulism was made in only one instance (case 2) and circulating toxin successfully demonstrated. In three nonfatal clinical cases circulating toxin could not be demonstrated.

The work of Bergman and his associates[8] appears to have proved that botulinus antitoxin neutralizes the circulating toxin in man, but no information is available as to its effect on tissue fixed toxin. In case 2 toxin was demonstrated in the liver even though 10,000 units of antitoxin (A and B) had been administered five hours before death. Unfortunately we neglected to determine the presence of toxin in the blood at necropsy.

The value of the serologic and tissue extract procedures should be recognized by the clinician and pathologist who have had difficulty in making an exact diagnosis in cases of botulism.

It is hoped that this report may stimulate an interest in the practical value of these procedures and that further observations may elucidate the various questions here raised.

SUMMARY AND CONCLUSIONS

1. Five outbreaks of botulism with three fatal and three nonfatal cases occurred within a period of ten months in Los Angeles County.

2. Circulating toxin was demonstrated in the blood of one patient by animal injection and its specificity (type A) determined by toxin-antitoxin experiments. Circulating toxin could not be demonstrated in three nonfatal cases.

3. Toxin was demonstrated in saline liver extracts in all the fatal cases.

4. The demonstration of circulating or tissue toxin as herein described should aid in the diagnosis of botulism and we believe that such attempts are indicated in all suspected cases of botulism.

TWO RELATED OUTBREAKS OF FOOD POISONING ATTRIBUTED TO A SALMONELLA ORGANISM

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On June 14, 1938, several cases of acute food poisoning were reported to the city health department as probably having been caused by food or foods eaten at a wedding banquet on the evening of June 12. On interviewing the persons reported to be ill, we learned that others who had attended the banquet were similarly affected with acute gastro-enteritis. All told, 105 persons were said to have partaken of food at the banquet held following a wedding ceremony at a public hall in the city. By interviewing sixty-eight of the victims and through a questionnaire sent to sixteen persons residing out of the city, it was learned that seventy-nine persons were made ill. Two of the foods served at the banquet were eaten by all of the persons who became ill—cantaloup with blackberries and stuffed tomatoes with a liver paste. Simultaneously with this outbreak there were also reported several cases of illness with similar symptoms following a confirmation party held on the same day, June 12. At this party twenty-one children, ranging in age from 12 to 18 years, and two adults ate a meal that included celery with a filling of liver paste. Every one of these became ill. In neither outbreak were there any fatalities

REPORT OF THREE TYPICAL CASES

The clinical course of several typical cases was supplied by the medical resident of one of the local hospitals:

Case 1.—A housewife aged 38, admitted to the hospital June 15, complained of abdominal pain, vomiting and diarrhea. On Sunday June 12 she had attended a large dinner reception.

From the Baltimore City Health Department.

June 13 she had ten loose, watery stools without mucus or blood. Associated with diarrhea she also had abdominal cramps and vomited several times. The next day she felt feverish and the diarrhea continued. On admission the temperature was 102.4 F., the pulse 100, the respiratory rate 24 and the blood pressure 100 systolic, 80 diastolic. Physical examination was negative except for slight diffuse abdominal tenderness without muscle spasm or rigidity. The red blood cells numbered 4,400,000, the hemoglobin content was 92 per cent and the white blood cell count was 9,500. The urine was normal except for the presence of 2 plus acetone. In the hospital the patient was given 500 cc. of 10 per cent dextrose intravenously. The diarrhea yielded to camphorated tincture of opium and bismuth subnitrate. June 17 the temperature was normal and remained so until discharge. Examination of the stool showed no mucus, pus or blood. The patient was discharged June 20.

CASE 2.—A school boy aged 13, admitted to the hospital June 15, 1938, complained of abdominal pain and diarrhea. June 12 he had attended a reception. June 13 he began to have diarrhea and severe abdominal pains and he vomited twice. The day before admission his temperature reached 102 F.; on admission it was 100.4 F., the respiratory rate 24 and the blood pressure 108 systolic, 70 diastolic. Physical examination was negative except for slight diffuse abdominal tenderness. The red blood cells numbered 5,010,000, the hemoglobin content was 98 per cent and the white blood cell count was 6,450. Examination of the urine was negative. The stool contained no blood, mucus or pus. There was an elevation of temperature until June 16. During this time diarrhea continued, with six stools a day. June 18 the temperature was normal and the diarrhea yielded to camphorated tincture of opium and bismuth subnitrate. The patient was discharged June 20.

CASE 3.—A schoolboy aged 8 years, admitted to the hospital June 15, 1938, complained of abdominal pains and diarrhea. He had attended a large dinner reception June 12. The next day, June 13, he had severe abdominal cramps and from ten to fifteen watery stools. The next day he vomited a number of times and felt feverish. On admission his temperature was 100.4 F., the pulse 104 and the respiratory rate 24. Examination was negative except for slight tenderness in the epigastrium. The liver was felt one fingerbreadth below the right costal margin. The red blood cells numbered 5,300,000, the hemoglobin content was 115 per cent and the white blood cell count was 10,350. Examination of the urine was negative. On the day after admission the temperature was normal, diarrhea and vomiting ceased and the patient complained only of occasional abdominal pains. He was asymptomatic June 17 and was discharged June 18. Examination of the stool showed no mucus, pus or blood.

TABLE 1.—*Wedding Banquet*

	Total	Ill	Not Ill
Total attending banquet interviewed	84	79	5
Tomatoes stuffed with chopped liver	79	79	0
Cantaloup and blackberries	82	79	3
Baked chicken and stuffing	75	71	4
Olives or celery or both	56	51	5
Soup	69	65	4
Vegetable salad (slaw)	66	62	4
Potatoes, peas and carrots	74	70	4

The majority of the other cases were strikingly similar in their clinical course and all the patients recovered completely after about six days. The death of one of the persons ill was reported about two weeks later, but it was found that this patient, aged 55, had completely recovered from the food poisoning more than a week before and died of a chronic cardiac condition.

There was no evidence or history of blood in the feces of any of the patients.

The average incubation period was about nineteen hours. Most of the persons became ill the day after the meal at about 6 p. m. The shortest incubation period was four hours (reported in one case) and the longest incubation period was sixty-seven hours after the food had been eaten.

EPIDEMIOLOGY

The food for both the banquet and the confirmation party had been prepared on the same day by the same private caterer, a person previously unknown to the health department, who operated from a private home.

TABLE 2.—*Confirmation Party*

	Total	Ill	Not Ill
Total attending party interviewed	23	23	0
Celery stuffed with chopped liver	23	23	0
Tomato juice	20	20	0
Roast turkey and dressing	21	21	0
Fruit aspic	14	14	0
Custard pastry	11	11	0
Peas	18	18	0
Sweet potatoes	16	16	0
Orange ice	20	20	0

The food for the banquet consisted of cantaloup with blackberries, celery, olives, soup, baked chicken with stuffing, potatoes, peas and carrots, vegetable salad and tomatoes stuffed with liver paste. The only food served at the confirmation party that was served at the banquet was the chopped liver paste, with tomatoes in the first instance and with celery in the second instance.

In preparing the food the chickens were drawn and the livers of the fifty-five chickens were parboiled, chopped in a meat grinder and mixed with hard boiled eggs, chicken fat and soaked bread. This filling was prepared, according to the caterer, at about 8 or 9 o'clock on the morning of June 12. It was then mixed by hand by three food handlers. The rooms in which the food was prepared were in the basement of a private dwelling, and these rooms were lacking in sanitary conveniences and adequate refrigeration. The outdoor temperature on June 12 reached a height of 94 F. The liver filling, in fact, was not refrigerated at all from the time it was mixed in the morning until it was served at about 7 p. m. The quartered tomatoes were filled with the liver mixture after being transported to the banquet hall. They were served as a course with other food.

The results of the interview with eighty-four of the persons who attended the wedding banquet with regard to the food eaten and whether or not they were ill are shown in table 1.

It will be noted from table 1 that every one who ate the chopped liver became ill. As further evidence that the chopped liver was the cause of the outbreak, the five persons who attended the wedding dinner and did not eat of the tomatoes with liver filling in each instance gave a report of not having become ill.

The results of the epidemiologic investigation of the twenty-three persons who attended the confirmation ceremony are shown in table 2.

It is interesting to note that twenty-three persons attended this confirmation party, of whom only two were adults. As stated, every one present became ill and every one present ate celery stuffed with liver paste. This was the only item of the menu eaten by all who attended the party. One adult at this party ate only a

single portion of the meal, namely the celery stuffed with liver paste. This person became ill. Several persons present failed to eat at least one of the other foods served. This is in contrast to the wedding banquet, where a few failed to eat the liver filling and did not become ill. One adult who attended the wedding banquet was on a diet and therefore did not eat the infected food; several were late for the meal and the liver product had all been eaten, and these were spared the illness.

Investigation failed to reveal anything of significance at either party with regard to the age or sex distribution of the cases. The wedding banquet was attended primarily by young white adults of both sexes with a few of the older members of the families present. The confirmation party was attended by twenty-one children and two adults. Again, all who ate the liver paste filling became ill.

The food handlers who prepared the food—two Negro and one white all female—stated that they ate portions of all the food during the preparation on the morning of June 12 between 8 and 9 o'clock and did not become ill. This perhaps indicated that either the chopped liver became infected after preparation and during the storage period or the infection occurred during the preparation and increased during the storage time, probably as a result of the very warm weather.

LABORATORY OBSERVATIONS

Owing to the delay in receiving reports of the outbreaks, no food with the exception of some olives was available for laboratory examination. The olives were found to be practically sterile. Fecal specimens from the three food handlers, from four other members of the caterer's household and from twenty of the persons who were made ill were obtained and submitted for bacteriologic examination. The fecal specimens from the three food handlers, from one of the members of the caterer's household and from fourteen of the patients all contained organisms which were identical and which were found to belong to the Salmonella group. Culturally, the organisms appeared to be Salmonella enteritidis but were not agglutinated by three different Salmonella enteritidis antiserums. They were agglutinated, however, to a fairly high titer by an antiserum of Salmonella newport. Transfers of some of the cultures were sent to the Standards Laboratory of the Medical Research Council at Oxford, England. This laboratory reported that the cultures were identical with one another and with the Newport type.

COMMENT

The method by which the food became infected in these outbreaks cannot be definitely determined. Several theories may be advanced as to what actually occurred. Many investigators do not believe that carriers or subclinical cases of Salmonella infections are usually the means of spread of this disease. It is known that fowls and other animals are infected with one or more of the many organisms making up the Salmonella group. Therefore, several possibilities present themselves. First, that the chickens were infected at the time of purchase with a member of the Salmonella group of organisms and through careless and multiple handling the cooked chicken, especially the livers, became infected, the infection being transmitted to the food either by human hands or by improperly washed utensils. The warm weather, the type of food and the lack of refrigeration, of course, made ideal conditions for the growth of the organisms. Second, rats were suggested as the mode of spread of this infection. Rat traps and evidences of rat infestation were noted in the cellar of the caterer. It was thought, therefore, that possibly the rats, acting as carriers, contaminated the food and were the basic cause of the infection.

This is all pure conjecture and, while proper refrigeration of perishable foods and cleanliness are both important and absolutely necessary, as shown in this case, another source of possible contamination of food may be present; that is, the contamination of well cooked food by poorly washed utensils or dirty hands directly from freshly killed fowl which had been previously infected by one of the organisms of the Salmonella group. Edwards [1] stated that Salmonella newport had never been reported in the United States prior to 1938. He has since, however, isolated this organism from the intestinal tract of a hen and also from a pullet, both of which were in flocks in which there was a high mortality.

SUMMARY

1. June 13, 1938, two large groups of persons became ill with gastro-enteritis, one group after a wedding banquet and one after a confirmation party.

2. The clinical course of all the cases investigated was strikingly similar, and recovery was complete after about six days.

3. The meals in both instances were prepared by a caterer previously unknown to the city health department. Sanitary conditions at the place of preparation were poor, the refrigeration was completely inadequate and the outside temperature reached 94 F. on the day the food was prepared.

4. Epidemiologic investigation definitely revealed that the liver filling was the cause of the illnesses at both affairs. For various reasons several persons who attended the wedding banquet did not partake of the liver and did not become ill. All who attended the confirmation ceremony ate the liver and all became ill.

5. None of the foods served, except the olives, were available for laboratory examination. Fecal specimens were obtained from twenty-seven persons. From stools of fourteen patients and of four other persons associated with the preparation of the food a Salmonella organism was isolated which was identified as Salmonella newport.

6. The methods of preparation and storage of the food and the warm weather were in themselves enough to cause the growth of bacteria and the production of toxins. Another source of infection has been suggested. Possibly some of the chickens were infected with a member of the Salmonella group at the time of purchase. The uninfected poultry may have been well cooked and properly prepared by the caterer. Unwashed utensils or human hands which had not been properly cleaned may have been the mode of transmission of the organism. The evidence of rat infestation at the place of preparation of the food gave rise to the thought that possibly these rodents had been the source of contamination of the food.

7. The outbreak again emphasizes the need for cleanliness, carefulness, refrigeration and experience on the part of persons engaged in the preparation of food for any large number of persons.

1. Edwards, P. R.: The Occurrence of Salmonella Newport in Domestic Animals, J. Am. Vet. M. A. 46:192 (Sept.) 1938.

EXCISION OF THE PATELLA IN ARTHRITIS OF THE KNEE JOINT

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For many years the apparent futility of all forms of conservative management of relatively severe arthritis of the knee joints has stimulated the search for a possible surgical procedure which is less radical than fusion or synovectomy of the involved joint. Every orthopedic surgeon can immediately recall the vast number of patients he has treated for arthritis of the knees who after traction, immobilization by casts in the position of function, physical therapy, vaccines and eradication of foci of infection would return at variable intervals complaining of pain on motion, stiffness and recurring deformity. Careful elicitation of the patient's complaints almost invariably results in the information that the greatest pain is localized in the anterior part of the knee and is aggravated by active attempts at extension. This motion when possible is almost invariably associated with subpatellar crepitation and not infrequently is associated with gross, irregular, cog-wheel-like movements of the patella.

The increasing frequency of case reports concerning the excision of the patella for fracture and the clinical and experimental observations of Brooke in regard to the physiology and function of the knee joint following the excision of the patella for fracture led me to believe on a priori evidence that the same procedure would be applicable in carefully selected cases of arthritis of the knee joint. Before the publication of Brooke's report a personal communication from Mr. Constantine Lambrinudi informed me that he had used this procedure in five cases of arthritis of the knee joint, three of which were hypertrophic and two of the chronic rheumatoid type. He stated that he was highly satisfied with the resulting relief of pain and improvement of function.

Operative removal of the patella, either total or partial, has been done by many surgeons in the treatment of fractures of this bone.

Thomson [1] advocated the removal of the small fragments in comminuted fractures of the patella in a paper before the Section on Orthopedic Surgery in 1934.

Blodgett and Fairchild [2] reported a series of cases of fracture of the patella in which either the patella or some of the fragments were removed at operation. This procedure gave uniformly good results.

Several British surgeons employ it as a routine measure in treating fractures of the patella.

Brooke,[3] of the Royal West Sussex Hospital, Chichester, England, has been employing this measure for a number of years and has reported thirty cases in which he has removed the patella for simple fracture, twenty-two patients being men and eight being women.

Hey Groves [4] stated that "Brooke's assertions seemed absolutely incredible. However, examination of the operative results showed that they were correct. He undertook some anatomic investigations and found that the quadriceps tendon passed well in front of the patella to join the patellar tendon. Hence the method suggested is perfectly justified."

Tippett [5] stated that he agrees with the conclusions which Brooke has arrived at after using the procedure in three cases.

Others who have reported on the operative removal of the patellar fragments are Bissell [6] and Whitelocke.[7]

In a personal communication of Dec. 31, 1938, Mr. Herbert Britain informed me that he has used this procedure fifteen times for fracture of the patella, ten times for osteo-arthritis, once for recurrent dislocation and once for osteomalacia. He feels it wise to confine the operation to patellar-femoral arthritis.

Excision of the patella for fractures associated with gunshot wounds of the patella was performed during the great war. The patella has also been removed for such conditions as primary osteomyelitis, tuberculosis, tumors and congenital dislocations.

Burrows [8] has seen two cases in which different surgeons had removed the patella for recurrent dislocation. In each case the symptoms of recurrent dislocation of the extensor apparatus continued after the operation.

Tippett is surprised that more correspondents have not commented on what he considers the most important application of excision of the patella, namely, to relieve pain in early osteo-arthritis in the knee joint.

This is the particular phase to be considered in this paper. Although I have not had occasion to advise this procedure in cases of early osteo-arthritis, I feel that the procedure has a definite place in the therapeutic armamentarium of the surgeon in the treatment of certain cases of arthritis of the knee. The rationale depends on a thorough understanding of the anatomy, physiology and mechanics of the knee joint.

MORPHOLOGY OF THE PATELLA

Brooke has concluded that the patella is a sesamoid bone but there is no evidence that its development is a response to a functional need or that the bone serves any useful function when formed. He thinks it is an integral part of the skeleton phylogenically inherited.

Bernays and Kazzender have shown that the patella is neither developed nor situated in the quadriceps tendon but that its development is independent of and occurs behind this tendon.

This can readily be seen in a study of the knee joint of a 50 mm. embryo. Later in the development of the embryo the patella obtains attachment to the tendon.

COMPARATIVE ANATOMY OF THE PATELLA

Studies in comparative anatomy indicate that in animals function does not influence the development and growth of the patella. The functional activity of the quadriceps tendon in man increases from birth till adult life, and the relative size of the patella if governed by function should be proportionately larger in the adult. Actually it is relatively smaller. In the sloth, the mole and the echidna, all slowly moving animals, the bone is well developed, while in the fox, the deer and the leopard, all rapidly moving animals, it is proportionately small. In the kangaroo, in which there is enormous development of the quadriceps in conformation to the animal's mode of progression, the bone is completely absent.

Read before the Section on Orthopedic Surgery at the Ninetieth Annual Session of the American Medical Association, St. Louis, May 17, 1939.

1. Thomson, J. E. M.: J. Bone & Joint Surg. 17:431-434 (April) 1935.
2. Blodgett, W. E., and Fairchild, R. D.: Fractures of Patella, J. A. M. A. 104:2121-2123 (June 20) 1936.
3. Brooke, Ralph: Brit. J. Surg. 24:733-747 (April) 1937; Proc. Roy. Soc. Med. 30:303 (Jan.) 1937.
4. Groves, E. W. H.: Brit. J. Surg. 24:747 (April) 1937.
5. Tippett, G. O.: Brit. M. J. 1:283 (Feb. 19) 1938.
6. Bissell, A. H.: Am. J. Surg. 40:486 (May) 1938.
7. Whitelocke, Hugh: Brit. M. J. 1:539 (March 5) 1938.
8. Burrows, H. Jackson: Brit. M. J. 1:418 (Feb. 19) 1938.

De Vries has deduced from her studies that the bone is in the process of reduction in much the same way that the fibula is and considers this a strong point in favor of phylogeny as the determining factor for its presence.

In contrast to the concepts just cited must be considered the well known fact that in the human being born with genu recurvatum the patella fails to develop normally until the deformity is corrected and natural functional stresses are allowed to occur. This indicates that the size of the patella is governed in man by function. Hence it seems that for the present phylogeny may be considered as the determining factor for the presence of the patella and function the determining factor for its size in man.

Fig. 1 (case 2).—Appearance of soft tissue shadow of patellar and quadriceps tendons.

ROLE OF THE PATELLA IN THE MECHANISM OF THE KNEE JOINT

Lickey has pointed out that the patella apparently fulfils two functions in the knee joint. He suggests that the patella forms a much more suitable pulley for motion around the condyles of the femur than the tendon itself, because the upper end of the patella is kept in a plane well in front of the axis of flexion and extension. He considers the second function of the patella that of a lever of the first order acted on by a force at each end with a fulcrum at a varying distance between the two. His explanation of the mechanics of the knee joint is probably correct, and the pulley and leverage action with its alteration of the fulcrum in the knee joint is probably advantageous.

Theoretically and actually the presence of the patella enhances the power of the quadriceps and therefore serves a useful purpose. It must follow logically that interference with its leverage action and alteration of the fulcrum would theoretically detract from the mechanical advantage in assisting movements at the knee joint. The problem is one of relativity because the patella is not essential for good knee function. This is shown by instances in which the patella is congenitally absent and will be shown by references to surgical literature concerning cases in which the patella has been operatively removed.

I have noted marked hyperplasia of the patellar and quadriceps tendon which began with the institution of active functional use of the extremity subjected to operation and continued for a variable period in each case. This was so marked in some cases that it could easily be seen on inspection. The change in the patellar tendon was demonstrated by a comparison of preoperative and postoperative roentgenograms, shown in figures 1 and 2.

EXPERIMENTAL INVESTIGATION OF THE IMPORTANCE OF THE PATELLA IN MOVEMENTS AT THE KNEE JOINT

Brooke investigated the importance of the patella in movements at the knee joint relative to the effects of its removal for fracture. From the postmortem room he obtained a number of knee joints in the fresh state. These were freed from all muscular attachments, with the exception of a short length of quadriceps tendon which was left attached to the patella. The specimens were then mounted on a stand in such a manner that the quadriceps tendon was connected by a cord passing over a pulley to a weight. A second weighted cord was attached to the anterior surface of the tibia and in turn passed over a reducing pulley and attached to a lever which recorded on a revolving drum. By means of this experimental setup Brooke determined that the absence of the patella enhanced the speed of motion at the knee joint, so that the time taken for movement of the leg from the horizontal to the vertical plane was about half the time required with the patella in situ. He also noted that when the leg was put through a complete range of motion, from active flexion to full extension, the time taken was less when the patella was excised than when it was in place.

EXCISION OF THE PATELLA IN CASES OF ARTHRITIS AND ITS EFFECT ON THE FUNCTION OF THE KNEE JOINT

It has been noted that moderate to marked improvement in function has resulted in each knee joint from which the patella has been excised for arthritis of the knee. The increase in range of motion and strength of the quadriceps group of muscles has been sufficient to be demonstrated by simple mechanical appliances. One appliance consists of a 5 pound weight so attached to the ankle by rope and pulleys that extension of the leg on the thigh lifts the weight a measured distance. It is then an easy matter to measure the relative strength of the extensors of the leg subjected to operation as compared with the strength of the extensors of the intact extremity, which is used as a control. In each case the power of extension of the surgically treated extremity was greater than in the extremity not so treated. This test was used only in cases of bilateral involvement in which operation was performed on the more severely involved extremity.

Another simple mechanical device was utilized to corroborate these observations. This was a lever

attached to a baseboard by a hinge. A spring balance scale was interposed between the ankle and the lever and was connected with each by a cord. The extremity to be tested was allowed to assume 90 degrees of flexion and in that position the toes of the foot were allowed to touch a wall lightly. The patient was instructed to hold the toes against the wall while force was exerted against the free arm of the lever. The force necessary to pull the toes from the wall was then measured on the scale.

Fig. 2 (case 2).—Appearance of patellar and quadriceps tendons after excision of the patella.

The same procedure was carried out on the intact extremity in cases of bilateral involvement. In each case it was found that the extremity could withstand greater pull than the extremity on which operation had not been performed.

My report concerns eleven cases of excision of the patella for arthritis of the knee. I feel that this procedure is not specific treatment of arthritis as such but rather a means of eradicating a definite mechanical impediment to function which results from the changes secondary to chronic arthritis.

The aim of the procedure, therefore, is not to obtain a perfectly normal knee joint but rather to relieve the patient from having pain on making attempts at extension and to increase the range of motion. Thus the indications are rather clearly defined and must be closely followed if the procedure is not to fall into ill repute. For the purpose of this study I used only cases which satisfied the following criteria:

1. The duration of the disease was several years.
2. Repeated periods of conservative management resulted in improvement, and there were recurrences.
3. When bilateral lesions were present the more severely involved joint was chosen while the other was observed as a control.
4. The disease was quiescent at time of operation.
5. There was definite x-ray evidence of arthritis (hypertrophic or rheumatoid) such as diminution of the width of joint spaces and presence of marginal exostoses (fig. 3).
6. It was evident that extension of the leg on the thigh to 160 degrees would be obtained postoperatively.
7. The mental and physical state of the patient was good enough so that he would be able to stand and walk postoperatively.

ETIOLOGIC FACTORS

I decided early in the study to select all cases suitable for operation regardless of the primary etiologic factor involved. This was decided on because, as previously stated, the procedure was designed to eliminate mechanical impediment to the function of the knee joint and was not aimed primarily against any specific disease state. Hence I included in this study four cases of atrophic arthritis, three cases of hypertrophic arthritis or combined arthritis, two cases of gonorrheal arthritis and two cases of traumatic arthritis.

There were four men and seven women. The youngest patient was 35 years old and the oldest 64 years. The average age was 49 years. The duration of the disease was from eighteen months to twenty-three years.

PATHOLOGY

At the time of operation the gross pathologic changes presented by arthrotomy were sufficient to explain the impairment of the function. These changes were present in the synovia, the articular cartilage of the patella and the femoral condyles as well as in the tibiofemoral joint.

In five cases hypertrophic synovitis was marked; in three cases the suprapatellar pouch was obliterated by a fibrotic fusion of its synovial walls. This apparently intimately connected the quadriceps tendon with the anterior aspect of the femur, which with the osseous changes present resulted in a loss of free motion of the quadriceps tendon and patella.

In eight cases osteophytes on the articular aspect of the patella impinged on corresponding osteophytes and marginal exostoses of the underlying femoral condyles.

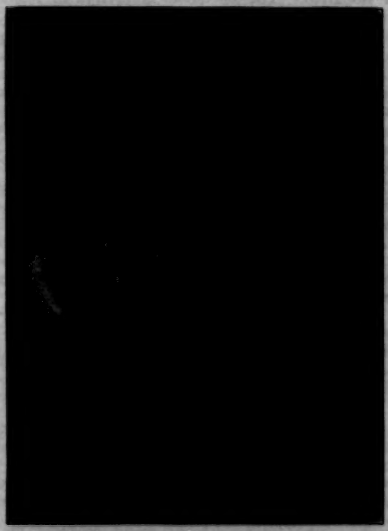

Fig. 3.—Typical appearance before operation.

In the articular cartilage of the femoral condyles there was frequently definite evidence of osteochondritis, with degeneration and loosening of circumscribed areas of cartilage from the underlying bone. In other cases the articular cartilage of the femoral condyles was definitely involved by panus formation with subsequent thinning and in places loss of the articular cartilage. In these

areas the subchondral bone had definitely undergone hyperplasia resulting in elevated areas, so that an apparent plateau was formed which acted as an osseous block to the normal excursion of the patella.

SYMPTOMS

In general the symptoms were pain in the knees on attempts at active motion and loss of function, which the patients usually attributed to pain but was often found to be a manifestation of deformity as well as pain. No effort was made to itemize the individual symptoms. Flexion deformity was present in ten of the eleven cases and restriction of motion was present in all the cases.

PREOPERATIVE TREATMENT

It was considered essential that some mobility of the joint be proved possible before operative intervention was attempted. In cases in which a relatively fixed flexion deformity of less than 160 degrees was present it was considered advisable to obtain at least 160 of extension by traction, by wedge casts, by turnbuckle casts employing Turner irons or by Mommsen's quengel method. It was deemed advisable to eradicate any foci of infection which might be present and might have an etiologic relationship to the arthritis.

OPERATIVE TECHNIC

The usual forty-eight hour preoperative preparation is employed. The operation is performed under a tourniquet. A vertical incision about 6 inches in length is centered over the patella. The skin margins are protected by towels. The incision is then carried down to the patella, which is enucleated by sharp longitudinal dissection of the tendinous fibers of the overlying quadriceps tendon.

On freeing the anterior surface of the patella the capsular attachment and synovia at the margins of the bone are easily severed. The longitudinal incision in the quadriceps tendon is then closed with a continuous chromic catgut suture. The superficial tissues are closed in layers without drainage.

On closure of the operative wound the limb is passively extended within the limits of safety. It is noted that the range of flexion is immediately definitely increased.

Postoperative immobilization either in a cast or by traction in a Thomas splint is used for a period of one week to ten days for the patient's comfort. Immobilization by massive cotton dressing might be as efficient.

POSTOPERATIVE TREATMENT

At the end of ten days the patient is encouraged to stand and bear weight and begin walking increasing distances daily.

In this series of cases there was no physical therapy other than active functional use of the extremity because of the inability of these patients to travel the long distances daily to the hospital. However, the results probably would have been attained at an earlier date if proper physical therapy could have been utilized.

In most of the cases in which the disability has been present over an interval of years, it has been deemed advisable to initiate weight bearing with the use of a posterior molded splint extending from the glutofemoral crease to the ankle. This has been employed because of the marked atrophy of the thigh group of muscles. Also these older patients are timid and require a little support in standing and walking to reestablish their confidence. This splint is dispensed with while the patient is abed and as soon as the postoperative reaction has completely subsided. It has not been necessary to use the splint longer than a few weeks.

COURSE AND PROGNOSIS

In general, all these patients have shown progressive improvement in ability to walk from early postoperative observation to the present time, which I attribute to diminution of pain, greater ability to maintain extension and greater range of motion. This observation is of interest as the improvement in ability to walk has occurred even though the condition was bilateral and only one of the extremities has been operated on. In support of this assertion is the fact that all the patients with both knees involved have repeatedly returned and requested a similar operation for the disability of the other knee.

In general the prognosis following excision of the patella for arthritis of the knee is good in regard to the relief of pain and increased function. It has been noted that in chronic multiple arthritis the general state of health is improved and also the joint manifestations of the disease are often ameliorated by changing the status from that of a helpless bedfast or wheel chair patient to that of an ambulatory person. This improvement was noted in each of my patients.

REPORT OF CASES

Case 1.—P. P., a man aged 35, entered Cook County Hospital Oct. 25, 1937, because of inability to walk resulting from painful swollen knee joints. This patient had been employed as an orderly at the hospital during the previous six years. Four years before admission he had his first attack of arthritis, during which all his joints were involved. After his first attack he was repeatedly readmitted to the hospital because of recurrence of arthritis. On previous admissions flexion deformities of the knees were treated by traction and casts. During the last six months he had no recurrence of acute symptoms, and he returned at this time particularly for treatment of the knees since he could not walk because of pain and deformity.

The essential abnormalities were swelling of the knees and periarticular thickening of the soft parts, which were most marked on the right side. The left knee was held in 20 degrees and the right in 30 degrees. There was palpable crepitation of the joints on active motion. Flexion was possible to 90 degrees but was associated with pain.

X-ray study of the right knee revealed a narrowing of the patellar-femoral and the tibiofemoral joint spaces. A small osteo-arthritic spur was present at the distal margin of the articulating surface of the patella and at the anterior-superior margin of the femoral condyles. An osseous mass was present at the medial margin of the medial condyle (Pellegrini-Stieda disease).

On October 28 the right patella was excised and the following gross pathologic appearance of the knee joint was observed:

The synovia of the suprapatellar pouch was markedly hypertrophic and bright reddish brown. The articular surface of the patella was rough and revealed many areas, up to 8 mm. in diameter, devoid of cartilage. There was an exostosis at the inferior margin of the patella. The cartilage of the femoral condyles revealed osteochondritic areas, measuring up to 1 cm. in diameter, in which the cartilage was yellowish white and could be easily depressed by an instrument.

Microscopic examination of the synovia revealed round cell infiltration and focal hemorrhagic areas. Synovial cells were moderately hyperplastic.

The postoperative course was uneventful. The patient was discharged November 16. He was last seen April 3, 1939;

at that time the surgically treated right knee was relatively painless and could be actively extended to 170 degrees and flexed beyond a right angle. He has been able to walk since leaving the hospital, placing most of his weight on the right leg.

He desires a similar operation on the other knee, as he is of the opinion that he could resume his occupation thereafter.

CASE 2.—L. S., a man aged 48, entered the hospital March 29, 1938, because of inability to walk and pain in the knees, elbows and hands. He had his first attack of arthritis six years previously and had been a patient in the hospital on three previous occasions for the same trouble. On his first admission in 1932 he had had many teeth extracted and had received a series of typhoid vaccine injections intravenously as treatment for his arthritis. In 1934 and in 1936 he was again treated in the hospital for flexion contractures of the knees. This treatment consisted of traction, which was followed by the application of casts until the contracture was corrected.

He returned at this time because of recurrence of the flexion deformity, which was associated with such marked pain that he could not walk. The essential abnormalities were diffuse swelling and periarticular thickening of both knees, which were most marked on the right side. There were a 35 degree flexion deformity of the right knee and a 20 degree flexion deformity of the left knee. There was free flexion to 50 degrees bilaterally. Active extension was associated with marked pain, and palpable crepitation was present over each patella.

X-ray study revealed narrowing of the patellar-femoral and the tibiofemoral joint spaces. The articular surface of the lateral condyle of the right femur was flattened and showed circumscribed areas of decreased density with some marginal areas of sclerosis and irregularity.

On March 31 the right patella was excised. During anesthesia the left leg was manipulated into complete extension and immobilized in extension by a circular plaster cast.

The gross pathologic change noted at the time of arthrotomy was loss of cartilage on the articular aspect of the patella, and the exposed bone was eburnated. The synovial lining of the suprapatellar pouch was pale pink and moderately thickened.

The articular cartilage at the margins of the femoral condyles was eroded in places, exposing the underlying subchondral bone. Microscopic sections of the synovia revealed round cell infiltration.

This patient was last seen April 19, 1939. He has been walking since leaving the hospital April 13, 1938. He has active extension of the right leg to 170 degrees and free flexion to 100 degrees. Motions are almost painless and he has repeatedly requested a similar operation on the left knee.

SUMMARY

1. Excision of the patella was utilized in the treatment of eleven cases of chronic arthritis of the knee joint.

2. The results of this operation have been satisfactory in eight cases and only fair in three, which were not well selected. One patient was an old Negro woman with peculiar psychic traits who was operated on twenty months before this report. Another had a latent gonorrheal pelvic infection, and the third was operated on too recently (two months ago) for one to be certain of the result.

3. In this series of cases there has been no death, complication or aggravation of the original condition.

CONCLUSIONS

Chronic arthritis of the knee joints with disability which has not adequately responded to repeated applications of conservative therapeutic measures is a prevalent condition.

For this deplorable state I offer a possible operative procedure, i. e., excision of the patella, which others have used and which at this time seems to be of definite value.

As far as can be determined to date, with proper regard to the definite indications for the operation there is little danger either to the patient or to the extremity.

122 South Michigan Avenue.

ABSTRACT OF DISCUSSION

DR. A. H. MEYER, Memphis, Tenn.: I have not had any experience with the removal of the patella. I am therefore placed in a peculiar position in opening this discussion. I have always been able to cope with comminuted fractures of the patella by removing a few small fragments and using a purse-string suture to hold the remaining ones. The results have been uniformly satisfactory. The procedure as suggested by Dr. Berkheiser appears to me to be a bit radical, but in view of his results one cannot with fairness say that he is on the wrong track. If one considers that the patella is a sesamoid bone, then nature has placed the patella here for a definite purpose from a functional and evolutional standpoint. A patella also helps to form the capsule of the knee joint and is the only bone in the body which does this. In view of the fact that the patella is therefore a contributing part in the formation of the knee joint, it would appear that its removal would certainly upset the anatomic structure of this very important weight bearing joint. I have always felt that the patella gives greater leverage to the function of the quadriceps muscle and acts as a direct fulcrum. To remove this would appear to me on the surface not only to weaken the joint but to put the extensor power of the quadriceps at a distinct disadvantage. From the clinical angle, I can readily understand that with excessive bone growth both on the patella and on the articular edges of the femur the patella under these circumstances would mechanically block motion in the knee joint and also, with the incongruity of the articular surfaces, produce pain on movement; therefore, on these bases removal of the patella would obviate these factors. About eighteen months has elapsed since Dr. Berkheiser's first operation of this nature, and I feel that sufficient time has not yet passed to tell what the final result will be. I mean that functionally it is too early to come to a conclusion and evaluate properly this method. More time should be given and these cases followed to decide ultimately the true value of the operation. Far be it from me to disparage Dr. Berkheiser's idea and his procedure. I merely wish to say that excision of the patella appears to be a rather radical operation; nevertheless, may I say that Dr. Berkheiser's end results are most illuminating and in this country he may be the pioneer who has led us across the new frontier to the fertile plains of peace and comfort for these unfortunate suffering individuals.

DR. JACOB KULOWSKI, St. Joseph, Mo.: This procedure did seem a little radical at first, but the subject has been worked up so thoroughly that the procedure should be given very careful consideration. I was particularly impressed with the indications for operation. My experience has been with certain cases of so-called counter mollities of the patella, which I described about six years ago, and I mention this because in these cases—there were three or four at the time—the lesion was confined solely to the patella articular cartilage, and in those cases the entire articular cartilage and the contiguous bony surface were resected. At the time I thought that the procedure was a little radical. I think now that perhaps it was not radical enough.

DR. FRANK G. MURPHY, Chicago: With Dr. Berkheiser's permission, I will answer Dr. Meyer's question. Recently I examined a case of bilateral osteo-arthritis of the knees with Dr. Berkheiser. One side had been operated on. There was fairly free movement on this side but I did not think the strength in the knee was quite equal to that of the untreated side. However, the extent of motion was much increased and the motion through this range was freer than that on the other side. The patient expressed a desire to have the operation

performed on the other knee when he got around to it. A question I wish to ask Dr. Berkheiser is Do you perform any further operative procedure in these cases, such as synovectomy or trimming away of some of the ossicles that seem to limit motion in these knees? Another matter that deserves special mention is that the scope of application of this procedure is not limited to arthritis or to fractures of the patella. I have excised the patella in doing an arthroplasty of the knee joint. I think it simplifies the operation and allows a number of short cuts by eliminating the necessity of trimming out and placing fascia between the patella and the underlying condyles.

DR. J. ALBERT KEY, St. Louis: It seems to me that Dr. Berkheiser did not mention the work of Dr. Blodgett of our own society, who is a pioneer in the removal of the patella and reported a series of cases before this group, all of which I believe were for fractures of the patella. Also Dr. Thompson has been progressively removing the patella for fracture for some years. Theoretically this operation is a poor operation but practically it works. That is the important thing. When I read Brook's paper I just did not believe it, but I got into a hole not long ago in lengthening a quadriceps tendon by Bennett's method and to my surprise found the patella ankylosed by bone to the femur, which I had not known until I was about half through operating. I took the patella out and the patient does not miss his patella at all; in fact, he is better than he would be had I left it in.

DR. JOHN P. STUMP, New York: The primary thing I want to know is what Dr. Berkheiser means by "conservative management preoperatively." As I saw his roentgenograms, he showed some knees with considerable destruction of the joints apparently due to atrophic arthritis, and one or two cases with osteoarthritic changes, and some with but little bone change. I have not removed patellas for any type of arthritis, so I have no experience in that regard; however, I have been interested in patients with painful knees who present symptoms of tenderness anteriorly and pain posteriorly, as the author described. I have relieved many of them by correcting the static strain. A pronated foot causes a tremendous strain on the internal lateral ligament and that strain in turn causes an irritation of the synovial membrane, causing a synovitis which gives symptoms such as Dr. Berkheiser described. I have given tremendous relief to the patients and in a number of cases if "cure" were not such a big word I would say "cured" them by merely correcting their weight bearing and removing the strain from the internal lateral ligaments. I should like to ask Dr. Berkheiser whether he has included this type of treatment in his preoperative management.

DR. GARRETT PIPKIN, Kansas City, Mo.: Lambernudi in London hunted up two cases for Jesse Nicholsen and me a year or two ago in which operation had been done several years before. Both patients had good functional results, considering the amount of destruction the knee had suffered prior to operation.

DR. E. J. BERKHEISER, Chicago: It is true that this operation seems a little radical and unanatomic, but we are all familiar with the removal of the sesamoids around the great toe and other places without any particular harm being done. So far as the strength of the knee is concerned, these knees were no good to begin with. They had strength but they were painful. After their removal they had a sufficient amount of strength so that the patients could walk better, a thing which they could not do before. I was asked why I had not operated on the second knee. All the persons who have had bilateral involvement on whom I have operated on one knee have returned requesting the operation on the second knee, and I have had considerable difficulty dodging this second operation because I wanted to keep it as a means of control, so to speak. Dr. Murphy asked whether there were not further operations. I have done nothing but this simple removal of the patella, in contrast to synovectomy or other procedures, merely because I wanted to find out what would happen in these knees with just the simple excision of the patella. Dr. Key brought up the point that I had not mentioned Dr. Blodgett's work and Dr. J. E. Thompson's work. My article was too long. It is included in the complete article. Several of these references are included but I did not have the time to mention them. Dr. Stump brought up the point about what physical effort had been made in the conservative management. I mentioned that we had done all manner of conservative procedures in the way of correcting the flexion deformities at the knee. These patients had had everything given to them, vaccines and all sorts of eradication of foci and all types of medication as well as all the physical therapy methods with different lights and heats. True, we have altered the shoes and made attempts at the correction of static deformities. These measures were beneficial to many of these patients, but really only for a temporary or a short period of time. On the other hand, these same individuals would return after varying periods of time with their same disability of their knees. These were not recent cases with minor bits of pathologic change in the knee, but they were rather extreme types of pathologic change. The period of duration was from a year and a half to sixteen years.

INCIDENCE OF ANESTHETIC EXPLOSIONS

PHILIP D. WOODBRIDGE, M.D.
BOSTON

The Committee on Anesthesia Accidents of the American Medical Association [1] stated in 1930: "Explosion is statistically today the least of the hazards of anesthesia." In comparison with such causes of surgical and anesthetic death as pneumonia, shock, hemorrhage, embolus, overdose of anesthetic and asphyxia from respiratory obstruction, the incidence of explosion is still so small that it may be classed with the rare complications.

Although statistically their importance is minute, they are of great emotional importance. The dramatic nature of the accident and of the death that may occur leads to publicity. The noise, the dramatic suddenness and the publicity all tend to produce a wave of fear, and under the emotional tension of fear it is felt that something must be done, and done quickly. The thing that is done not infrequently turns out to be quite illogical. Thus in one hospital after a nitrous oxide-ether explosion the use of ethylene was prohibited but that of all other agents and methods was permitted! Other instances of equally illogical action could be cited. The emotional response to explosion is in great contrast to the attitude toward other causes of death during or following operation. Although mortality rates from postoperative pneumonia and from surgical and anesthetic shock, which are a few hundred times the explosion rate and many more times the explosion death rate, cause some degree of concern, they are accepted with comparative calmness. Certainly any recurring cause of accidental death should be carefully investigated and, if possible, eradicated.

QUESTIONNAIRE

After the fatal cyclopropane explosion at the Lahey Clinic in October 1938,[2] an immediate need was felt for information to serve as a logical basis for determining future policy with regard to all inhalation anesthetics. We needed to know not how many explosions, fatal and not fatal, there had been with various

From the Department of Anesthesia, the Lahey Clinic.

1. Henderson, Yandell: The Hazards of Explosion of Anesthetics, J. A. M. A. **94**:1491 (May 10) 1930.
2. Woodbridge, P. D.; Horton, J. W., and Connell, Karl: Prevention of Ignition of Anesthetic Gases by Static Spark, J. A. M. A. **113**:740-744 (Aug. 26) 1939.

gases, but the incidence of such explosions, the incidence of resultant death and the opinion of the anesthetists of this continent concerning the advantages of certain of the drugs and the advisability of continuing their use. For this purpose a questionnaire was sent to 100 physicians specializing in anesthesia in this country and in Canada. No anesthetist's name was included or avoided because he was known to have had an explosion.[3] The list was compiled from four sources: anesthetists certified by the American Board of Anesthesiology, those certified by the American Society of Anesthetists, those who were known to have had long experience, and others known to be using a variety of anesthetic agents, including cyclopropane. An effort was made to obtain satisfactory geographic distribution. Eighty-seven of the 100 blanks were filled out and returned. Therefore there was little or no distortion of the statistical result through a selective factor determining failure to fill out the questionnaire. There may have been some distortion in an unknown direction from the fact that the blanks were sent only to physicians specializing in anesthesia. No attempt was made to include all reported explosions, because a representative, unbiased sampling was desired.

OPINIONS CONCERNING HAZARDS

The question was asked "In comparing cyclopropane with ethylene, do you believe cyclopropane possesses definitely greater explosion hazard? about the same hazard? or definitely less hazard?" A similar question was asked substituting for the word "ethylene" the phrase "nitrous oxide-ether (or oxygen-ether), given by the closed method [4]" and a third question substituting "open drop ether." The results are given in table 1. The consensus is that cyclopropane, ethylene, nitrous oxide-oxygen-ether and oxygen-ether, given by the closed method, all present about the same explosion hazard and that open drop ether is safer in this respect.

TABLE 1.—*Explosion Hazard of Cyclopropane*

	Explosion Hazard of Cyclopropane Is		
	Greater Than	Same as	Less Than
Hazard of ethylene	13 votes	44 votes	21 votes
Hazard of nitrous oxide-oxygen-ether (closed)	19 votes	57 votes	7 votes
Hazard of ether (open)	50 votes	16 votes	20 votes

COMPARATIVE ADVANTAGE OF CYCLOPROPANE

To determine whether anesthetists felt that cyclopropane was or was not superior to other anesthetics in any important respects, the following question was asked: "In regard to the ultimate welfare of the patient and the advantages to the surgeon, do you believe that cyclopropane, as contrasted to the other anesthetics that are available, offers great advantages to many patients or to a few patients, moderate advantage to many patients or to a few patients, slight advantage to many patients or to a few patients, or no advantage?" The phrasing of this permitted the anesthetist to check one or more answers. Thus he might indicate that he considered it of great advantage to a few patients and of slight advantage to many. The replies as given in table 2 indicate a body of opinion overwhelmingly favorable to cyclopropane.

To determine how anesthetists felt with regard to the single factor of explosion hazard of cyclopropane as contrasted to its advantages, the following questions were asked: "Do you believe cyclopropane should be abandoned because of the explosion hazard? Do you believe cyclopropane should be abandoned for other reasons?" The results, given in table 3, are almost unanimously in favor of the continued use of cyclopropane. The number of votes cast against it is three, not five, for the two who voted against it "for other reasons" are among the three who voted against it "because of the explosion hazard." It is worthy of mention that, of these three, one had used cyclopropane but five times, another had used it "very few" times and had had one ether fire, and the third had not used it at all but had had two explosions with ether!

TABLE 2.—*Advantage of Cyclopropane*

	Cyclopropane Offers	
	To Many Patients	To Few Patients
Great advantage	51 votes	23 votes
Moderate advantage	21 votes	4 votes
Slight advantage	2 votes	4 votes
No advantage	0 votes	0 votes

INCIDENCE OF EXPLOSIONS

In order to learn the frequency of explosions of various anesthetics in relation to one another and to the total number of administrations, these questions were asked: "About how many times has ether (all methods and combinations) been administered by you or under your supervision? How many explosions resulted? How many were killed by explosions? How many severely injured?" A similar set of questions was put with regard to ethylene, and another for cyclopropane. The results are shown in table 4. The replies cover about one and three-fourths million administrations of ether, one-third million of ethylene and one-fourth million of cyclopropane. The apparent explosion rates are respectively 1.73, 2.44 and 3.85 per hundred thousand administrations. The standard deviations due to chance, shown to the right of these figures in table 4, are of such magnitude that the differences in these apparent rates are not significant. That is, the total number of explosions in these two and a third million administrations is so small that, if there were similar series covering ten or fifty or a hundred times as many explosions it might be found that the apparent rates shifted their relative positions, so that, for example, ether might have a higher rate than cyclopropane. So far as this questionnaire is concerned, it can only be

TABLE 3.—*Status of Cyclopropane*

	Should Cyclopropane be Abandoned	
	Yes	No
Because of explosibility?	3 votes	80 votes
Because of other reasons?	2 votes	76 votes

3. The one exception to this was that the Lahey Clinic data were included.

4. In the closed method there is no intentional escape of gases after the first few minutes of anesthesia. Exhaled gas passes through soda-lime or other chemical absorber to remove exhaled carbon dioxide. The method may be used for any inhalation anesthetic and is almost always used for cyclopropane.

said that all rates are very low and that they all fall in the neighborhood of two to four per hundred thousand.

In addition there were other reports in which the number of administrations was not given. These are shown in boldface in table 4. Thus there were thirteen additional explosions of ether among an unknown number of ether administrations reported by eleven anesthetists, two of ethylene by seven anesthetists, and none of cyclopropane by four anesthetists. Furthermore, twenty anesthetists stated that they had not used ethylene, and two that they had not used cyclopropane.

In these two and a third million anesthesias two people were killed by explosions. The mortality rate from explosion therefore appears to be extremely low. One of these was killed by an ether explosion, the other (the Lahey Clinic patient) by cyclopropane. These figures are so extremely low that it cannot be stated whether the mortality rate is greater for one of these drugs than for the other. In fact the figures both for apparent explosion rates and for deaths are such as to indicate that their occurrence is due to chance rather than to any important factor or factors which might function in relation to one of the drugs and not in relation to another.[5]

It may be assumed that the bulk of the ether administrations were by open drop, the ethylene by machine with constant or intermittent flow and escape or with the closed system with carbon dioxide absorption, and cyclopropane by the closed system. The open method probably increases the explosion hazard by allowing the heavy ether vapor to flow over the floor of the room toward distant sources of ignition and decreases it by using air as the diluent. The closed method probably

TABLE 4.—*Explosion Rates*

	Replies	Administrations	Explosions	Explosion Rate per 100,000	Killed	Injured
Ether	76 (11)	1,705,342 ?	31 (13)	1.73 ± 0.31	1	5
Ethylene	59 (7) (20)	328,708 ? None	6 (2)	2.44 ± 0.86	0	2
Cyclopropane	81 (4) (2)	259,785 ? None	10 (0)	3.85 ± 1.22	1	0

decreases the hazard by confining the gases within the machine and increases it by using oxygen as a diluent. Some anesthetists, however, are in the habit of using air as the diluent for cyclopropane. If the ether had also usually been administered by the closed method with oxygen as the diluent, the results might have been different. This questionnaire throws no light on the influence of these factors.

SUMMARY

A questionnaire was sent to 100 anesthetists who had achieved recognition, and the eighty-seven replies that were received indicated the following:

Ethylene, cyclopropane and ether (given with oxygen or with oxygen and nitrous oxide in a closed system) are considered to be equally dangerous as regards the explosion hazard. Open drop ether is considered to be safer.

In comparison to other anesthetics, cyclopropane is believed to offer moderate to great advantages to a large proportion of patients.

Among two and a third million administrations, the explosion rates of ether, ethylene and cyclopropane were all very low, and all fell in the neighborhood of from 2 to 4 per hundred thousand anesthesias. The explosion mortality rates were too low to be figured from the data available, since there were but two deaths in the two and a third million cases.

5. Yandell Henderson[1] quoted figures from questionnaires concerning ethylene sent by W. J. M. Scott to surgeons and by Hugh Cabot to hospitals. The former showed 163,000 administrations with eighteen explosions (rate 11.04 ± 2.61 per hundred thousand) and one death; the latter 146,000 administrations with three explosions (rate 2.06 ± 1.19 per hundred thousand) and number of deaths not stated. Nothing was said concerning the presence or absence of any selective factors in the method of collecting these figures which might have influenced the results.

Clinical Notes, Suggestions and New Instruments

PAROXYSMAL LACRIMATION DURING EATING AS A SEQUEL OF FACIAL PALSY

SYNDROME OF CROCODILE TEARS

LESTER ALLEN RUSSIN, M.D., IOWA CITY

My purpose in this report is to call attention again to an interesting condition of which only eight cases have previously been reported in the literature (Bogorad,[1] 1926, one case; Kroll,[2] 1929, one case; Kaminsky,[3] 1929, two cases; Ford,[4] 1933, four cases).

Essentially, the condition consists of a paroxysmal lacrimation every time the patient salivates during eating. It was called the "syndrome of the crocodile tears" by Bogorad, for the crocodile was formerly believed to weep hypocritical tears while devouring its victims. It occurs only after peripheral facial nerve palsies. It is not to be confused with lacrimation immediately after typical Bell's palsies, in which an ectropion is present permitting tears to run out of the conjunctival sac. In the following cases and those reported in the literature no ectropion is present and the tear duct puncta are patent.

The reader is referred to the article by Ford, who reviews the literature and interprets the observations.

REPORT OF CASES

CASE 1.—*History.*—W., a medical student aged 30, came to the receiving ward in September 1937 complaining of excessive lacrimation every time he eats certain foods. The past history revealed a vague history of a fall with a severe bruise on the head at the age of 14. As far as the patient could remember there was no period of unconsciousness or vomiting. It seems that several months later the patient noticed that, every time he ate, tears would brim over the right eye and run down the cheek. This condition has persisted until the present time. I have noticed the patient in the doctor's dining room during the lunch period. He can be seen sitting at the table holding his napkin close to his right eye, constantly dabbing away the tears. This condition, he states, is aggravated by sour, salty or bitter tasting foods. Mechanical stimulation of the mouth does not produce tearing.

Physical Examination.—The patient was well developed and well nourished. The right side of the face was obviously abnormal; the right palpebral fissure was smaller than the left. The right nasolabial fold was deeper than the left. There was no ectropion. When the patient was told to show his teeth,

Reported from the Receiving Ward, Cincinnati General Hospital.

1. Bogorad, F. A.: Das Syndrom der Krokodilstränen, Vrach. dielo **11**:1328 (Sept.) 1928; cited by Kaminsky.[3]

2. Kroll, M.: Die neuropathologischen Syndrom zugleich Differentialdiagnostik der Nervenkrankheiten, Berlin, Julius Springer, 1929, p. 222.

3. Kaminsky, S. D.: Ueber das Syndrom der Krokodilstränen, Deutsche Ztschr. f. Nervenh. **110**:151, 1929.

4. Ford, R. F.: Paroxysmal Lacrimation During Eating as a Sequel of Facial Palsy (Syndrome of Crocodile Tears); Report of Four Cases with Possible Interpretation and Comparison with Auriculotemporal Syndrome, Arch. Neurol. & Psychiat. **29**:1279-1288 (June) 1933.

he wrinkled his forehead and closed the right eyelid at the same time. This extension of the innervation to all portions of the facial musculature did not occur at all times. Under varying circumstances the innervation was more or less complete at different times.

Also when told to wrinkle his forehead the patient would show his teeth a little and close his right eyelid. This was done invariably. In other words, the patient could not innervate any one part of his right facial muscles without more or less innervating the total right facial musculature. The muscular tonus on the right side of the face was increased.

Chemical Tests.—Acid, salt or bitter substances produced a collection of tears in the right conjunctival sac, which would fill up and overflow, running down the right cheek. No other substances would produce this effect. Masticatory movements had no effect on the lacrimation. Substances with strong flavors had no effect. Sensation of taste was preserved on both sides of the tongue.

The cranial nerves were normal. Motor power and the sensorium were normal. Reflexes were normal. The medical examination otherwise was negative, including Wassermann, urine and blood tests.

The consulting ophthalmologist reported that the fundus was normal. The tear duct was probed and found to be normal.

Electrical tests were not done.

CASE 2.—*History.*—L. H., a Negro woman aged 27, suddenly noticed on Dec. 1, 1937, that her face was drawn to the right side. Three weeks later she had periods of forgetfulness which lasted several days. Then suddenly she had an attack of unconsciousness and convulsions with loss of sphincter control, and biting of the tongue. This dramatic episode followed an injection of neoarsphenamine. During the next week several more seizures occurred, one of which did not render her unconscious. When seen in the neurology clinic Jan. 13, 1938, the patient presented right facial weakness, staggering to the right side, pain on the right side of the face, and deafness in the right ear with tinnitus. There was no past history of epilepsy or convulsions as a child. However, there was a history of trauma to the head about the middle of October 1937 without loss of consciousness.

The neurologic examination revealed (1) negative eyegrounds; (2) the pupils dilated, the right fixed; (3) ptosis of the right eyelid; (4) paralysis of the seventh nerve; (5) sensation slightly diminished in the ophthalmic division of the fifth nerve; (6) definite diminution of hearing in the right ear; (7) palate going up in the midline; (8) gag reflex present on both sides; (9) motor division of the fifth nerve normal; (10) loss of taste on the right side of the tongue; (11) reflexes normal, with none abnormal; (12) sensorium unaltered except for the ophthalmic branch of the fifth nerve; (13) position sense normal; (14) no change in past pointing; (15) rapid movements unaltered

Dr. Fabing, consultant neurologist, believed at this time that the patient had a peripheral lesion in the cerebellopontile angle or in the internal auditory meatus. The patient was admitted to the house in the neurology service for a complete work-up. Dr. C. D. Aring saw the patient in neurologic consultation and it was his impression that the patient had meningeal syphilis, basilar and vertical. Repeated Wassermann tests finally showed, on two occasions, plus 1 for cholesterinized antigen. Subsequent blood Wassermann tests were negative and all spinal punctures were negative. (In December 1934 the blood Wassermann reaction was negative. The spinal fluid Wassermann reaction was negative except for increased globulin.)

The patient was referred to the venereal clinic for antisyphilitic treatment in spite of the seronegative Wassermann reaction.

May 3, 1938 (six months had elapsed since the previous admission), the patient was seen in the receiving ward complaining of excessive lacrimation every time she ate certain kinds of foods. Salty and bitter foods caused tears to well up in the right eye and run down over the cheek.

Physical Examination.—The patient, though 27, looked fifteen years older. The right side of her face was obviously abnormal. There was a ptosis of the right eyelid, and the right palpebral fissure was smaller than the left. The right nasolabial fold was deeper than the left. There was no ectropion. Examination of the facial muscles revealed that the patient could not innervate any single muscle of the face without innervating all of them. For example, when told to show her teeth, the patient wrinkled her forehead and closed her right eye.

Chemical Tests.—Acid, salt and bitter substances produced lacrimation in the right eye and not in the left eye. Any other substances produced no effect. Masticatory movements had no effect on the lacrimation. Aromatic spirit of ammonia and other substances with strong odors did not produce any tearing.

Other Cranial Nerves.—1. The eyegrounds were normal. 2. The pupils were dilated, the right fixed. 3. Sensation was slightly diminished over the ophthalmic division of the fifth nerve. 4. There was definite diminution of hearing of the right ear. 5. The palate went up in the midline. 6. The gag reflex was present on both sides. 7. The motor division of the fifth nerve was normal. 8. There was loss of taste (?) on the right side of the tongue. 9. The superficial and deep reflexes were normal; there were no abnormal reflexes. 10. The sensorium was unaltered except for the ophthalmic branch of the fifth nerve. 11. The position sense was normal. 12. There was no change in past pointing. 13. Rapid movements were unaltered.

Medical examination was otherwise negative, including Wassermann, spinal puncture, blood and urine. Vestibular tests revealed normal vestibular responses.

The Weber test showed lateralization to the left: Air conduction was greater than bone conduction on the left. There was no air conduction on the right. Nerve deafness was present on the right. The tear duct was probed and found to be patent.

COMMENT AND SUMMARY

The probable explanation for the abnormal associated movements of the face, advanced by Spiller and cited by Ford, is that "The regenerating nerve fibers have become misdirected so that they no longer reach the muscles which they formerly supplied but are scattered at random over the face. The bundle of fibers which innervated the orbicularis oculi, for example, before the facial paralysis developed, is distributed among all the facial muscles during regeneration, and hence nerve impulses flowing along these fibers will cause a diffuse reaction." This is attested, for instance, by the fact that each time the patient tried to show his teeth he closed his eye on the affected side. Increased facial tone results because each facial muscle receives the same number of impulses as the whole facial musculature would receive under normal circumstances.

The lacrimation during salivation can be explained in a similar manner. It has been stated by competent observers that the seventh nerve also supplies secretory fibers to the lacrimal gland, by way of the sphenopalatine ganglion and the zygomaticotemporal nerve, as well as motor fibers to the face and sensory fibers to the anterior two-thirds of the tongue and salivary glands. Any derangement of the seventh nerve would therefore affect all these simultaneously. It naturally follows, if the theory is correct, that when the fibers regenerated to the lacrimal gland some of the fibers destined to the salivary glands were misdirected. And some of those fibers that formerly supplied the salivary glands now supply the lacrimal gland as well.

Ford states that perhaps the reason why paroxysmal lacrimation does not occur more frequently, since facial palsies are common, is that it may occur but is not severe enough to warrant relief. Also that the lesions in the cases previously reported by Ford and others are located in an unusual site, probably proximal to the geniculate ganglion. Case 2 in this paper seems to bear out this assumption.

It is hoped more cases will appear in the literature to cast more light on this unusual and interesting phenomenon.

Children's Hospital.

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1939

Council on Pharmacy and Chemistry

STILBESTROL

PRELIMINARY REPORT OF THE COUNCIL

STILBESTROL IS A NAME GIVEN TO A RECENTLY DEVELOPED SYNTHETIC ESTROGEN—DIETHYLSTILBESTROL—WHICH IS REPORTED TO BE REMARKABLY EFFECTIVE WHEN ADMINISTERED ORALLY. THE UNUSUAL THERAPEUTIC RESULTS AND THE CONVENIENCE OF ADMINISTRATION ARE CONDUCIVE TO WIDESPREAD INTEREST IN THE SUBSTANCE. IN COMMON WITH OTHER ESTROGENS, ANIMAL EXPERIMENTS INDICATE THAT STILBESTROL MAY BE CARCINOGENIC UNDER CERTAIN CONDITIONS. EVIDENCE HAS APPEARED WHICH INDICATES THAT TOXIC REACTIONS ARE ASSOCIATED WITH THE USE OF THIS SUBSTANCE. IN THIS REGARD DR. EUGENE F. DU BOIS, A FORMER MEMBER OF THE COUNCIL, GENEROUSLY OFFERED TO SUBMIT TO THE COUNCIL RESULTS OF AN EXPERIMENTAL INVESTIGATION ON STILBESTROL PERFORMED BY DR. EPHRAIM SHORR AND OTHERS, PRINCIPALLY AT CORNELL UNIVERSITY AND THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH. THE RESULTS, APPEARING IN A MANUSCRIPT WHICH WAS ESPECIALLY PREPARED FOR THE PURPOSE OF PUBLICATION AS A COUNCIL REPORT, INDICATE THAT IN THE HANDS OF THESE INVESTIGATORS A LARGE PERCENTAGE OF THEIR PATIENTS DEVELOPED TOXIC REACTIONS OF SEVERAL SORTS, INCLUDING NAUSEA, VOMITING, CUTANEOUS ERUPTIONS AND POSSIBLY LIVER DAMAGE. THE EXPERIENCES WITH STILBESTROL OBTAINED BY THIS GROUP OF INVESTIGATORS HAVE NOT, HOWEVER, BEEN DUPLICATED BY SOME OTHER WORKERS. THE REPORTS OF WORK CONDUCTED IN EUROPE AND, TO A LESSER DEGREE, IN THIS COUNTRY, HAVE INDICATED FOR THE MOST PART THAT THE TOXIC REACTIONS OF STILBESTROL WERE LIMITED TO GASTROINTESTINAL DISTRESS IN FROM 5 TO 15 PER CENT OF THE PATIENTS TREATED AND THAT SOME OF THIS DISTRESS DISAPPEARED ON FURTHER TREATMENT. SHORTLY AFTER THE MANUSCRIPT OF SHORR ET AL. WAS RECEIVED, DR. C. L. BUXTON AND DR. EARL T. ENGLE SUBMITTED A REPORT TO THE COUNCIL ON THE EFFECTS OF STILBESTROL, WHICH IS BASED ON OBSERVATIONS OF A FEW VERY CAREFULLY OBSERVED PATIENTS. THESE AUTHORS FIND LITTLE EVIDENCE THAT STILBESTROL IS MORE TOXIC THAN OTHER ESTROGENS.

AN ADDITIONAL REPORT ON THIS SUBSTANCE IN THE FORM OF A PRELIMINARY STATEMENT BY DRS. CYRIL M. MACBRYDE, HAROLD FREEDMAN AND ELLEN LOEFFEL WAS ALSO SUBMITTED TO THE COUNCIL. THESE AUTHORS OBTAINED RESULTS SIMILAR TO THOSE OF DRS. BUXTON AND ENGLE.

THE COUNCIL AUTHORIZED PUBLICATION OF THE REPORTS ENTITLED "A CLINICAL STUDY OF THE SYNTHETIC ESTROGEN STILBESTROL," BY DRS. SHORR, ROBINSON AND PAPANICOLAOU; "EFFECTS OF THE THERAPEUTIC USE OF DIETHYLSTILBESTROL," BY DRS. BUXTON AND ENGLE, AND THE PRELIMINARY STATEMENT "STUDIES ON STILBESTROL," BY DRS. MACBRYDE, FREEDMAN AND LOEFFEL. IN SO DOING, THE COUNCIL WISHES TO POINT OUT THAT CONSIDERABLE MORE EXPERIMENTATION IS NECESSARY. IT IS WELL TO AWAIT THE OUTCOME OF FURTHER INVESTIGATIONS WHICH ARE BEING MADE IN INSTITUTIONS WHICH HAVE FACILITIES FOR PROPER INVESTIGATION AND OBSERVATION. BECAUSE THE PRODUCT IS SO POTENT AND BECAUSE THE POSSIBILITY OF HARM MUST BE RECOGNIZED, THE COUNCIL IS OF THE OPINION THAT IT SHOULD NOT BE RECOGNIZED FOR GENERAL USE OR FOR INCLUSION IN NEW AND NONOFFICIAL REMEDIES AT THE PRESENT TIME AND THAT ITS USE BY THE GENERAL MEDICAL PROFESSION SHOULD NOT BE UNDERTAKEN UNTIL FURTHER STUDIES HAVE LED TO A BETTER UNDERSTANDING OF THE PROPER FUNCTIONS OF SUCH DRUGS.

THE COUNCIL EXPRESSES ITS THANKS TO DRS. SHORR, ROBINSON AND PAPANICOLAOU, TO DRS. BUXTON AND ENGLE AND TO DRS. MACBRYDE, FREEDMAN AND LOEFFEL FOR THEIR GENEROUS COOPERATION IN MAKING THE REPORTS AVAILABLE, AND AUTHORIZES PUBLICATION OF THESE REPORTS AS PRELIMINARY STATEMENTS ON THE STATUS OF STILBESTROL.

PAUL NICHOLAS LEECH, Secretary.

A CLINICAL STUDY OF THE SYNTHETIC ESTROGEN STILBESTROL

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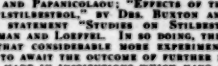
In 1938 Dodds, Goldberg, Lawson and Robinson [1] announced the synthesis of a new estrogenic agent, diethylstilbestrol (4:4-dihydroxy-alpha:beta-diethyl stilbene). As can be seen from its formula,



it does not contain the phenanthrene ring system formerly thought to be necessary for estrogenic activity. It was found an extremely powerful estrogenic agent in animals, suffering little diminution in potency by the oral as compared to the parenteral route.[2] It reproduced the effects of the natural estrogens in animals and was about two and one-half times as active as estrone by injection. By the oral route the superiority over the natural estrogen was far greater, since the naturally occurring compounds lose a high percentage of their activity when given by mouth. In man the loss of activity of the natural estrogens given by mouth has been shown to be as much as 95 per cent, as judged by vaginal smears.[3]

These attributes of the new compound, its high estrogenic activity, its oral efficiency and its cheapness gave promise of a wide usefulness in human therapy. Preliminary experiments on animals had indicated that it was devoid of toxic effects.

Two groups of English investigators, working under the auspices of the Therapeutic Trials Committee of the Medical Research Council, reported very favorably on a trial of the synthetic estrogen in two series of women. Stilbestrol produced all the effects observed with natural estrogens, including the relief of the menopausal syndrome. In the group studied by Bishop, Boycott and Zuckermann [4] some by-effects in the form of nausea and vomiting were noted in three of forty-six patients receiving stilbestrol. In the series reported by Winterton and MacGregor [5] comprising fifty-one women, some of the patients experienced slight nausea during the treatment but in only one case was the drug poorly tolerated

More extensive clinical studies, while confirming the estrogenic properties of the compound and the attendant relief of menopausal symptoms, have indicated a far higher percentage of unpleasant side reactions than those reported by the English investigators. Varangot [6] found severe gastrointestinal reactions in eight of eighteen women. Ehrhardt, Kramann and Schäfer [7] also report a large number of unpleasant side effects, which, however, they incline to attribute to overdosage (from 2 to 3 mg.).

To present a detailed review of the extensive literature on the clinical use of this compound is beyond the scope of this article. Many workers regard the side effects to be significant enough to condemn stilbestrol for human use.[8] Others feel that they can be avoided by proper doses.[7] Kellar and Sutherland [9] state that the toxic effects following oral administration can be eliminated by employing the intramuscular route. This observation is in accord with the views of several workers who regard the toxic effects as due to local action on the mucous membrane of the gastrointestinal

Dr. Robinson died November 22.

This study was aided by a Grant from the Josiah Macy Jr. Foundation.
From the New York Hospital, the Departments of Medicine and Anatomy of the Cornell University Medical College, and the Hospital of the Rockefeller Institute for Medical Research.

This is an extract from the complete paper. Reprints of the article will contain the omitted paragraphs and particularly much of the tabular material. The photomicrographs will appear in the reprint also.

1. Dodds, E. C.; Goldberg, L.; Lawson, W., and Robinson, R.: Estrogenic Activity of Certain Synthetic Compounds, Nature, London **141**: 247 (Feb. 5) 1938.

2. Dodds, E. C.; Lawson, W., and Noble, R. L.: Biological Effects of Synthetic Estrogenic Substance 4: 4'-dihydroxy-alpha: beta-diethylstilbene, Lancet **1**: 1389 (June 18) 1938.

3. Papanicolaou, G. N., and Shorr, Ephraim: Action of Ovarian Follicle Hormone in Ovarian Insufficiency in Women as Indicated by Vaginal Smears, Proc. Soc. Exper. Biol. & Med. **33**: 585 (Jan.) 1935; Action of Ovarian Follicular Hormone in Menopause, as Indicated by Vaginal Smears, Am. J. Obst. & Gynec. **31**: 806 (May) 1936.

4. Bishop, P. M. F.; Boycott, M., and Zuckermann, S.: Estrogenic Properties of "Stilbestrol" (Diethylstilbestrol): Clinical and Experimental Investigation, Lancet **1**: 5 (Jan. 7) 1939.

5. Winterton, W. R., and MacGregor, T. N.: Clinical Observations with Stilbestrol (Diethylstilbestrol), Brit. M. J. **1**: 10 (Jan. 7) 1939.

6. Varangot, J.: Clinical Use of Stilbestrol, Lancet **1**: 296 (Feb. 4) 1939; Activité oestrogène et toxicité du stilbestrol (4: 4' Dihydroxy alpha: beta Diethylstilbene), Presse méd. **28**: 725 (May 13) 1939.

7. Ehrhardt, K.; Kramann, H., and Schäfer, H.: Vorläufige klinische Ergebnisse mit oestrogenen Stilben-Präparaten, München. med. Wchnschr. **86**: 261 (Feb. 17) 1939.

8. Buschbeck, H., and Hausknecht, K.: Ueber die Wirkung von Stilboestrol beim Menschen, Klin. Wchnschr. **18**: 160 (Feb. 4) 1939.

9. Kellar, R. J., and Sutherland, J. K.: Clinical Experiences with New Synthetic Oestrogen—"Stilboestrol" (Diethylstilbestrol): Report to Therapeutic Trials Committee of Medical Research Council, J. Obst. & Gynaec. Brit. Emp. **46**: 1 (Feb.) 1939.

tract. It has also been reported that with continuation of treatment the unpleasant by-effects tend to disappear.[10]

Equal lack of agreement is seen in the reports of toxicity studies in animals. They uniformly confirm the estrogenic activity of the compound and reveal an extraordinary similarity in action to the natural estrogens. Such widely diverse effects of the natural estrogens as the increased fat and calcium content of cock blood,[11] the inhibition of the response of the pigeon crop-gland to prolactin [12] and the sensitization of the infantile rabbit uterus to progesterone [13] are imitated. But in contrast to the early indications of its harmlessness, Loeser [14] noted in rats decreased appetite, epistaxis, vaginal and intestinal hemorrhages, fatty degeneration with subsequent necrosis of the liver, enlargement of the adrenals with arterial hyperemia and bleeding, and enlargement of the spleen with hemorrhagic reaction in the islands. According to Krietmair and Sieckmann [15] the administration of from 0.5 to 1.0 mg. per gram to mice resulted in death in from ten to sixteen days. In rats from 1.5 to 5 mg. per gram resulted in paralysis and death in an hour. Tislowitz [16] observed a disturbance of the myelogenic system, and granulocytopenia and anemia in dogs receiving 5 mg. by injection for from twenty-five to fifty days. Morrell,[17] on the other hand, has failed to observe any pathologic changes in the tissues of rats, rabbits and monkeys.

In the face of such conflicting reports it is obvious that much more knowledge of the properties of this compound will be needed before either condemning it for human use or making it generally available for estrogenic therapy.

EXPERIMENTAL SUBJECTS AND METHODS

The studies were carried out on forty-four women, many of whom had been previously treated with the natural estrogens estrone and estradiol benzoate. There were two cases of primary amenorrhea in young women (aged 19 and 22) in whom secondary sex characteristics and uterine growth had already been achieved by previous treatment with natural estrogens. Withdrawal bleeding had fairly regularly followed the administration, for periods of two weeks, of sufficient estrone or estradiol benzoate to induce a follicular vaginal smear. In the absence of treatment the vaginal smears were of the typical atrophic type we have already described as characteristic of this variety of amenorrhea.[18] The remaining forty-two were cases of the menopausal syndrome, of which fourteen were spontaneous, three followed irradiation and twenty-five were associated with the removal of the uterus, ovaries or both.

The stilbestrol was obtained from two sources and administered orally in oil and in pill form, plain or enteric coated, and intramuscularly in oil. Occasionally intramuscular injections of stilbestrol were alternated with amniotin or estradiol benzoate. During these periods the patients were kept unaware of the change in medication.

The vaginal smear method of evaluating estrogens in man, introduced by Papanicolaou and Shorr,[3] was employed as the objective index of the action of stilbestrol. This method had been employed also by the English investigators, so that a comparison of results on this basis was possible. The smears were obtained at frequent intervals, usually three times weekly. In instances in which studies were made of comparative estrogenic potencies with the natural estrogens, daily smears were taken. Several vaginal biopsies were taken to compare the hypertrophy induced by stilbestrol with that following the natural estrogens. The smears were used to guide dosage and to compare the subjective response with the morphologic changes induced by the drug. We have already pointed out [3] that there is no necessary correlation between the degree of symptomatic improvement and the extent of the smear change. The level of the smear change at which amelioration of symptoms takes place varies with the individual patient. With some, complete relief is obtained with slight changes in the smear; with others, a complete follicular change must be brought about. Most cases fall between these two extremes. The follicular stage represents full replacement with estrogenic hormone equivalent to "one human unit." It therefore serves as a measure of the estrogenic potency of a preparation and permits a simple and accurate comparison of the relative strength of the various members of this group of hormones. It will help in the interpretation of the data if these considerations are borne in mind.

The patients were seen at weekly intervals and an evaluation was made as to the effect of the medication on the menopausal symptoms. Side effects of the drug were made note of, the smears were read and further treatment was prescribed. From time to time hepatic function studies were carried out. Wherever possible, these studies were made before treatment was begun, at the end of the course and during a rest period. Often this could not be done, either because the patient could not spare the time out of working hours or because of unwillingness to repeat the tests because of the previous discomfort.

Two tests of liver function were employed, namely the sodium benzoate test as devised by Quick [19] and the bilirubin tolerance test.[20] In the former test the patient is given 5.9 Gm. of sodium benzoate orally, and the total urine excreted during the next four hours is collected. This urine is concentrated and acidified, precipitating the hippuric acid. It is then filtered and the residue is washed with cold water. The hippuric acid residue is then dissolved in hot water and titrated with standard alkali. The amount of hippuric acid present is calculated and reported as grams of sodium benzoate. The normal individual excretes at least 3.4 Gm. of the 5.9 Gm. given in four hours. Since the excretion might be decreased in renal insufficiency, a urea clearance test is run simultaneously.

The bilirubin tolerance is performed by first determining the bilirubin blood level. One mg. of bilirubin per kilogram of body weight is dissolved in sterile 0.1 molar sodium carbonate and given intravenously. The

10. Winterton and MacGregor.[5] Kellar and Sutherland.[6]
11. Zondek, B., and Marx, L.: Induction of Lipemia and Calcemia in Cock by Means of Estrogenic Hormone, Arch. Internat. de pharmacodyn. et de thérap. **61**: 77 (Jan. 31) 1939.
12. Folley, S. J., and Watson, H. M. S.: Some Biological Properties of Diethylstilbestrol, Lancet **2**: 423 (Aug. 20) 1938.
13. de Fremery, P., and Gerrling, M. C.: Acta brev. Neerland. **9**: 17, 1939.
14. Loeser, A.: Untersuchungen über die Pharmakologie und Toxikologie synthetischer Brunststoffe (4,4'-Dioxy-alpha beta-Diäthylstilben), Ztschr. f. d. ges. exper. Med. **105**: 430 (April) 1939; abstr., Zur Pharmakologie und Toxikologie des 4,4'-Dioxy-alpha, beta-Diäthylstilbens (Diäthylstilboestrol), Klin. Wchnschr. **18**: 346 (March 11) 1939.
15. Krietmair, H., and Sieckmann, W.: Ueber 4,4'-Dioxy-alpha-beta-Diäthylstilben, eine synthetische Verbindung mit der Wirkung des Follikelhormons, Klin. Wchnschr. **18**: 156 (Feb. 4) 1939.
16. Tislowitz, R.: Acta brev. Neerland. **9**: 15, 1939.
17. Morrell, J.: Endocrinology, to be published.
18. Shorr, Ephraim, and Papanicolaou, G. N.: Action of Gonadotropic Hormones in Amenorrhea as Evaluated by Vaginal Smears, Proc. Soc. Exper. Biol. & Med. **41**: 629 (June) 1939. Papanicolaou and Shorr.[3]
19. Quick, A. J.: Clinical Value of Test for Hippuric Acid in Cases of Disease of Liver, Arch. Int. Med. **57**: 544 (March) 1936.
20. Harrop, G. A., Jr., and Guzman Barron, E. S.: Excretion of Intravenously Injected Bilirubin as Test of Liver Function, J. Clin. Investigation **9**: 527 (Feb.) 1931.

blood bilirubin level is then determined after five minutes and again after four hours. The percentage of bilirubin retention:

$$\frac{\text{Value of third—1st}}{\text{Value of second—1st}}$$

Normal retention is less than 5 per cent.

Whenever possible, the dose of stilbestrol aimed at was that which would produce, in addition to symptomatic relief, a typical follicular or "estrus" smear. In a number of patients, comparison was made of the relative potencies of stilbestrol by the oral and the intramuscular route with estrone, estradiol benzoate, estradiol propionate and ethinyl estradiol.

The data have been assembled in table form. [Tabular material will appear in the reprint.]

ANALYSIS OF RESULTS

1. *The Estrogenic Activity of Stilbestrol.*—That stilbestrol is a powerful estrogenic agent is apparent from inspection of the data assembled in table 2. The changes induced in the vaginal smear and epithelium are comparable to those brought about by the natural estrogens. Typical follicular smears resulting from both stilbestrol and estradiol benzoate administered to the same subject (case 5, menopausal castrate) are illustrated (figs. 1-5), as well as biopsies of the vaginal epithelium taken at the same time as the smears.

Of the forty-four cases treated with stilbestrol, such follicular smears were induced in eight. In seventeen others quite advanced prefollicular smears were seen. In two no changes occurred, probably as a consequence of the small amount of drug administered because of the patients' intolerance. The remaining sixteen showed intermediate changes. The correlation between the degree of smear change and the level of dosage of the synthetic estrogen bears out what we had previously observed with the natural estrogens, namely a considerable variation from patient to patient in the dose required to bring about a complete estrogenic effect. While the degree of smear change is roughly proportional to the dosage of stilbestrol, the influence of the individual sensitivity to the drug is quite apparent.

There were, however, certain differences in the smear changes induced by the natural estrogens and the synthetic one. These lay chiefly in the frequent failure of increasing doses of stilbestrol to bring about progressive changes in the smear picture (cases 6, 8, 26, 27, 28, 33, 35, 37, 39, 40, 41, 42, 43). Indeed, in several instances (cases 14, 15, 29, 30) actual regressions took place during the administration of the same or even higher doses.

This phenomenon may signify the acquisition by the body of some means of dealing with the compound so as to render it less active. This suggestion is based in part on evidence from perfusion experiments that the liver is capable of removing large amounts of natural estrogen from the circulation. The loss of about 95 per cent of the activity of the natural estrogens estrone and estradiol, which we have noted in the human being, finds a reasonable explanation in these experiments, since the estrogens would reach the liver immediately after absorption from the intestinal tract, presenting an opportunity for partial inactivation before entering the general circulation. The initial absence of a similar mechanism for dealing with the synthetic estrogen may be responsible for the fact that this compound loses little of its potency when taken orally. The subsequent diminution in oral efficiency in the cases cited might be due to the development, after a time, of some such mechanism for the inactivation of the compound.

In addition to the vaginal smear changes, evidence for the estrogenic activity of stilbestrol is furnished by the several cases of withdrawal bleeding in our series. Bleeding after cessation of therapy took place not only in the menopausal group but also in the two cases of primary amenorrhea studied. In case 1, withdrawal bleeding, quite scanty in amount, and of from two to three days' duration, followed two of the three courses of stilbestrol. In case 2, bleedings of from three to five days' duration followed in each of two cases. Both young women had been treated over a long period with natural estrogens, with the regular appearance of bleeding of about the same duration and character on cessation of treatment.

In contrast with the natural estrogens estrone and estradiol, stilbestrol loses little of its activity by mouth. Equivalent smear changes were induced, orally, by from one to two times the amount administered intramuscularly as compared with from fifteen to twenty times the amounts of natural estrogens required orally. Stilbestrol, however, suffers by comparison with ethinyl estradiol, the oral activity of which in the three cases studied was four and a half, seven and twenty times as great. The lower figures are probably the more accurate ones. Unfortunately, the unpleasant gastrointestinal reactions to this preparation make prolonged studies rarely possible. The greater potency of ethinyl estradiol as compared with stilbestrol in the human subjects contrasts with the animal assays,[21] which found stilbestrol three times as active. This discrepancy indicates the necessity for human assay studies. A comparison of the oral activity of estrone and stilbestrol in one case showed the latter to be about six times as active.

By the intramuscular route, estradiol benzoate would appear to be more active than stilbestrol. One mg. of estradiol benzoate is equivalent to 6,000 rat units. On the basis of the three cases studied, its estrogenic activity would appear to be from three to four times as great as stilbestrol by injection. With respect to estrone by the same route, 1 mg. of stilbestrol brings about smear changes equivalent to about 2,500 rat units, or 1.7 mg.

From these experiments it becomes apparent that the chief advantage of the synthetic estrogen lies in its greater immunity to destruction by the oral route than the natural estrogens. This highly desirable property, combined with its low cost, would make it highly advantageous for human use were it not accompanied by very unpleasant side effects, the toxic nature of which may be suspected.

2. *The Subjective Effects of Stilbestrol.*—There is general agreement that stilbestrol, in addition to paralleling the biologic effects of the natural estrogens, is capable of ameliorating the subjective symptoms of the menopause. The results of the treatment of forty-two women with the menopausal syndrome have been condensed in table 3 from the data detailed in table 1. Except in four cases (cases 11, 22, 28, 36), in which insufficient treatment was given because of intolerance to the drug, the medication was associated with from partial to complete amelioration of the usual menopausal symptoms, the flush, headache, depression, and so on. In most instances the degree of relief experienced corresponded quite well with the extent of the vaginal smear change. However, it was often difficult to evaluate the effect of the drug on symptoms other

21. Emmens, C. W.: J. Physiol. **94**: 22P (Dec.) 1938, quoted by Dodds, E. C.: Stilbestrol, Practitioner **143**: 309 (March) 1939.

than the flush because of the frequency with which the medication was accompanied by unpleasant side effects. Even in the absence of definite discomfort, many patients were struck with the marked improvement in well-being which followed the substitution of the natural for the synthetic estrogen. This change may have been due to relief from an ill definable discomfort produced by stilbestrol rather than to a qualitative difference in its action on the menopausal symptoms as compared with the natural estrogens.

No such agreement exists as to the incidence and significance of the side or "toxic" effects resulting from the use of stilbestrol. Bishop, Boycott and Zuckermann report transitory nausea in one and vomiting in two of forty-six cases studied and express the opinion that these effects should not be considered a contraindication to the use of this preparation as an estrogenic agent. Winterton and MacGregor, treating fifty-one cases, reported slight nausea in six, which disappeared shortly despite continuation of the drug by mouth. One patient experienced slight nausea after injection, and one tolerated both forms of treatment badly. Kellar and Sutherland found the nausea by the oral route transitory and state that it could be eliminated by changing to the intramuscular route. On the other hand, Varangot noted severe gastrointestinal symptoms in eight of eighteen women, and Loeser in six of fifteen. Other workers cited also stress the high incidence of gastrointestinal symptoms.

Our results have been compiled in table 1 and condensed in table 4. Of the forty-four cases treated, toxic symptoms were absent or trivial in only nine, comprising 20 per cent of the cases. In fourteen cases (32 per cent) the drug had to be stopped because the symptoms were intolerable. In twenty-one cases (48 per cent) the drug could be continued despite the discomfort, either because of the coincidental relief of menopausal symptoms or because the patient was unaware of the connection of the medication with the symptoms. Toxic side effects, therefore, occurred in 80 per cent of the cases. The relative incidence of the different symptoms is shown in table 4.

The nausea was of all degrees of intensity, sometimes constant, sometimes occurring in waves. Vomiting either was frank or took the form of regurgitation of a clear, sweetish watery fluid. One patient (23) regurgitated moderate quantities of fluid six times during a twenty minute interview. The abdominal distress varied from uncomfortable distention after meals, epigastric pain and cramps to an intense searing sensation "as if there were a burning fluid moving about in the intestine." There was one case of severe bloody diarrhea (case 9).

Lassitude of varying intensity occurred in thirty-two cases (72 per cent). While frequently most noticed after meals in the form of an uncontrollable drowsiness and lethargy, it was occasionally present throughout the day. Some patients said that they felt as if they had been drugged. A peculiar restlessness sometimes accompanied the lassitude, which made it very difficult to relax and give way to sleep.

There were eight skin rashes noted. One (case 33) consisted of extensive areas of diffuse brawny erythema, hot to the touch, involving the back of both upper arms, and the front of the thighs just above the knees. It disappeared within two days of stopping the medication. Another (case 23) took the form of an itchy papular eruption involving the neck, shoulders and upper part of the back. The remainder were less extensive and consisted of small macular erythematous patches associated with considerable pruritus.

The one toxic psychotic reaction in this series is of particular interest. During the second week of treatment, while the patient was receiving 2 mg. daily by mouth, her husband called the clinic to say that his wife was behaving queerly. She was seen by Dr. George Henry, of the psychiatric division, to whom we are indebted for the following summary:

> The patient is tense and somewhat apprehensive and presents spasmodic coarse tremors of various parts of her body. She claims she has great difficulty in controlling herself. She says "Yesterday I cracked up. I get that vague feeling in my head and then I go haywire. I feel disconnected (lower abdomen) as though my legs didn't belong to me—only at times. Yesterday I was laughing and crying. A week ago after a neighbor told me about the Germans, I wanted to stick a knife in myself." She had an impulse to break the window and use the glass to make vaginal smears. After talking with the physician she felt more calm.
>
> The impression was of acute, mildly delirious reaction in an emotionally unstable person. Present medication should be discontinued.

TABLE 4.—*Subjective Effects Following Administration of Stilbestrol*

(Menopausal syndrome = 42 cases)
(Primary amenorrhea = 2 cases)

Extent of Effect	Relief of Menopausal Symptoms	Toxic or Side Effects: Nausea	Vomiting	Abdominal Distress	Diarrhea	Lassitude	Miscellaneous
0	4	7	30	13	37	12	Skin rashes = 8
+	4	6	3	11	3	4	Psychotic reaction = 1
++	5	11	5	14	3	12	Vertigo = 6
+++	14	12	3	6	0	16	Marked thirst = 1
++++	14	8	3	0	1	0	Paresthesias = 2
Toxic reactions Number.....		37	14	31	7	32	
Percentage...		84	32	70	16	72	

It was three weeks after treatment was stopped before the symptoms had disappeared completely.

Finally there were six cases of vertigo, two paresthesias (cases 3 and 12), and one patient who complained of intense thirst (patient 13) of a few days' duration. One of Loeser's patients also complained of "unquenchable" thirst after an injection of 2 mg. of stilbestrol.

Several of the authors cited describe the side effects as generally of a transitory character, the patients acquiring a tolerance with continued administration of the drug. Such was not our experience, in the main, with this group of patients. While this is occasionally seen (cases 13, 14, 15, 18, 30), as a rule the symptoms persisted throughout treatment in one form or another. They sometimes disappeared temporarily to recur suddenly, without there having been any change in dosage (cases 4, 27). A second course of treatment was tolerated just as poorly as the first (cases 3, 4, 7, 9, 14, 16, 23, 29, 35, 41, 42). There would appear to be little support for the suggestion that one may anticipate the development of a tolerance for the drug.

The suggestion has also been advanced that the side effects of stilbestrol are due to local irritation of the gastric and intestinal mucosa. This concept is contradicted by the large number of severe reactions encountered when the drug was given intramuscularly. This

was particularly striking in cases 9, 16, 22 and 23 when without the knowledge of the patient single injections of stilbestrol were given at intervals during a course of treatment with amniotin (estrone). In these cases each injection of the synthetic estrogen was followed within two or three hours by severe toxic reactions.

Finally, the side effects cannot be correlated with the dose employed in the sense that there is a critical level, e. g. 2 mg. as has been suggested, below which they do not occur. They may be present with doses of 0.5 mg. and absent when as much as 5 mg. is given (cases 9, 18 and 42).

TABLE 5.—*Results of Hippuric Acid Excretion Test and the Intravenous Bilirubin Tolerance Test in Cases in Which Stilbestrol Was Administered*

			Before Stilbestrol		At End of Therapy		1 to 4 Months After Stilbestrol: Retention	
	Stilbestrol		Bilirubin Retention, per Cent	Hippuric Acid, Gm.	Bilirubin Retention, per Cent	Hippuric Acid, Gm.	Per Cent	Gm.
Case No.	Mg.	Days						
17	..	..	4.5	3.3	..	...	..	...
12	..	..	13.0	2.9	..	...	..	...
32	..	..	11.0	2.8	..	...	..	...
27	21	14	7.0	2.4	22	2.6	22	2.3
							35	2.5
37	93	44	11.0	2.3	22	2.2	13	2.0
38	23	26	13.0	2.7	38	3.2	..	...
			25.0	3.0				
39	61	28	8.0	2.5	14	3.3	..	...
43	42	21	27.0	3.8	..	...	21	...
44	30	30	10.0	3.1	6	2.8	..	...
6	30	26	....	...	2	3.6	2	2.9
26	23	14	....	...	..	...	5	3.4
30	68	28	....	...	..	...	2	3.0
34	280	78	....	...	..	...	5	3.2
5	53	56	....	...	7	2.3	0	0.5
7	46	22	....	...	0	2.4	10	2.4
14	28	21	....	...	4	3.0	5	2.3
20	105	31	....	...	7	2.5	46	2.2
29	13	31	....	...	7	3.9	12	2.8
41	56	30	....	...	7	1.9	8	1.5
42	42	21	....	...	5	3.3	13	2.8
15	49	21	....	...	56	3.0	12	4.0
18	19	19	....	...	1	2.3	0	2.7
36	7	7	....	...	8	2.8	5	3.3
4	116	35	....	...	10	3.2	..	...
19	74	28	....	...	5	1.8	..	...
33	42	21	....	...	11	2.5	..	...
	0	44			17	2.6		
	21	14			21	2.7		
40	70	28	....	...	10	2.5	..	...
	0	20			7	3.0		
	175	42			14	2.9		
9	22	15	....	...	9	3.0	..	...
16	27	23	....	...	..	...	11	2.5
							13	2.5
31	4	4	....	...	..	...	..	3.0
21	77	35	....	...	..	...	21	3.6

From the character of the side effects, their induction by injection and the occurrence of nervous and cutaneous reactions in addition to the gastrointestinal discomfort, it would appear justifiable to regard them as largely central in origin. Local irritation of the gastric and intestinal mucosae may be a contributory factor but is not essential to the production of the side effects.

3. The Effect of Stilbestrol on Hepatic Function.—The results in the control series showed that the benzoate excretion was within normal limits in only three of nine cases, and the bilirubin tolerance test was normal in one of nine cases. Following stilbestrol administration in two (cases 27, 37) of six cases in this group, the bilirubin retention progressively increased without a significant change in the benzoate excretion. In cases 38 and 39 the bilirubin retention increased while the benzoate excretion improved. In case 44 the bilirubin retention decreased and the benzoate excretion decreased.

Normal results for bilirubin retention and sodium benzoate excretion were obtained following stilbestrol administration in cases 26 and 30, and in case 34 even after 200 mg. was given over a seventy-eight day period. In case 6 there were both a normal bilirubin retention and sodium benzoate at the end of the course of 39 mg. in twenty-six days, and after the discontinuance of stilbestrol for fifty-one days.

In the group of ten cases (5, 7, 14, 20, 29, 41, 42, 15, 18 and 36) in which the first test was performed at the end of the stated course of stilbestrol, the bilirubin tolerance and sodium benzoate excretion test were both abnormal in three cases (5, 8 and 20); the bilirubin tolerance alone was abnormal in two cases (15 and 29); the sodium benzoate alone was abnormal in three cases (7, 18 and 41). No further stilbestrol was administered to these patients, and retests after a few weeks to months showed a variable trend, as exemplified by the fact that in three cases (14, 20 and 29) both tests showed decreased liver function and in two cases (5 and 42) the results in one test showed improvement, whereas the other showed a decrease in function and in three instances (15, 18 and 36) both tests showed improvement.

Those done during the administration of stilbestrol, as in cases 35 and 40, were equivocal. In the former the bilirubin retention increased as administration was continued and the sodium benzoate excretion tended to improve; in the latter the sodium benzoate excretion showed a rather marked improvement and the bilirubin retention did not change significantly.

The high incidence of abnormal results in the control group and the variable response in the stilbestrol-treated group prevent any conclusion at this time.

COMMENT AND SUMMARY

In this study an attempt has been made to evaluate the synthetic estrogen stilbestrol from the standpoint of its estrogenic activity, its influence on subjective symptoms of the menopause and its safety as a therapeutic agent for the human being.

Its estrogenic activity in the human being would appear to be definitely established not only on the basis of its ability to induce a follicular or estrous type of vaginal smear, vaginal cornification and withdrawal bleeding but also by evidence from other studies which have shown that endometrial hyperplasia, proliferation of the mammary epithelium and inhibition of lactation followed its use.

We have ventured to speculate on the significance of the oral immunity enjoyed by the synthetic estrogen. Two experimental observations seem pertinent to this phenomenon. The first of these is the very low recoveries of natural estrogens after injection into experimental animals. The second is the demonstration, by perfusion experiments, that the liver is capable of quickly removing large amounts of natural estrogens from the circulating blood. These observations point to the existence of some mechanism predominantly in the liver by which these hormones can be inactivated or degraded to a form with lower potency. Some such mechanism would explain the loss of activity of the

estrogens, such as estrone and estradiol, and the immunity of estriol which is believed to be a degradation form with a much lower potency than the former compounds. By mouth, these estrogens would reach the liver before getting into the peripheral circulation, offering a better opportunity for inactivation than when given by injection. The purpose of a mechanism for preventing the accumulation of the more potent estrogens in the body is as obscure as our knowledge of what the effects of such accumulations would be. If this mechanism has a homeostatic purpose, its inability to cope with the potent synthetic estrogens stilbestrol and ethinyl estradiol might not be devoid of danger. It is of interest, in this connection, that both these chemically unrelated substances should be extremely active by mouth and produce the same type of toxic side effects. May we be witnessing here that type of reaction which would result from the unchecked accumulation of highly active natural estrogens in the circulation? The reason for the existence of a mechanism for inactivation would then be apparent. It would be ironical if any gain in oral potency could be made only at the expense of the normal protective mechanisms of the body.

These studies are in accord with others cited as to the ability of stilbestrol to abolish the subjective symptoms of the menopause. Some reservations were expressed, though not very strongly, as to whether the relief induced by the synthetic estrogen was qualitatively as good as that experienced with the natural ones. It seemed more likely that the differences reported were due to the freedom from side effects with the latter preparations.

A variety of toxic effects were observed. A number of these, such as nausea, vomiting, abdominal distress, anorexia and diarrhea, were associated with the gastrointestinal tract and have been reported by other workers. They were frequently severe enough to alarm not only the patients but also the investigators. In addition to these, lassitude was a common complaint, occasionally profound enough to resemble the effect of a hypnotic. One effect, of the nature of a toxic psychotic reaction, was noted, as well as two instances of paresthesia. There was one episode of marked thirst, similar to a case reported elsewhere, and finally eight cutaneous rashes, a type of reaction not previously observed. The diversity of these effects argues for their central origin as against the suggestion that the toxic effects are due to local irritation of the gastrointestinal tract. Local irritation may play a contributory role, but all the symptoms can be induced by injection.

The high incidence of these toxic effects in our series is striking. Of forty-four cases treated, they were absent or trivial in only nine, or 20 per cent. How to reconcile the occurrence of symptoms in the remaining 80 per cent with the extremely low incidence reported by several groups of workers is not clear. In one series, that reported by Bishop, Boycott and Zuckermann,[22] the low dosage and short periods of treatment frequently employed may partly account for the low incidence (7 per cent) of toxic effects. Of twenty-seven courses of treatment given by these workers to fifteen menopausal women, the daily oral dose in twelve was 0.1 mg., in seven more 1 mg. for from four to fourteen (in one case twenty-eight) days. During sixteen of these twenty-seven courses, the subjective improvement was nil. Of nine smears examined, three were considered estrous, three showed no change and three were improved, two only slightly. Of eighteen cases of amenorrhea, nine failed to have withdrawal bleeding. If the criteria of induction of follicular smears and symptomatic relief are considered a proper standard, an appreciable number of patients in this series would appear to have been undertreated. These comments are not meant as a criticism of the commendable caution exercised in the first studies of a new and potent drug but are an attempt to reconcile the discrepancies between the two studies.

The obverse question arises as to whether the patients in our series received overdoses of the drug. We felt that a fair test of the therapeutic safety of stilbestrol would consist in freedom from unpleasant reactions when amounts were taken sufficient to induce an estrous smear and complete symptomatic relief. Once these objectives were attained, the level of dosage was not raised (except inadvertently in one case, 34). The higher doses used in this study were a consequence of our adherence to these criteria and cannot be considered excessive in terms of the usual standards for the evaluation of therapeutic agents.

There appeared to be no justification for the view that the side effects could be avoided by the choice of the intramuscular route or that a tolerance to the drug could be expected to develop in most cases with its continued use.

One of the main points at issue is whether the side effects are to be regarded as unpleasant but otherwise innocuous concomitants of the action of the drug or whether they are expressions of underlying damage and hence contraindications to its use. According to the first interpretation, stilbestrol would represent a therapeutic agent suitable for restricted use by patients who are free from its side effects or willing to tolerate them and for whom expense is a major consideration, natural estrogens being available. The second view would regard the drug as unsuited for human use in its present form, interpreting the symptoms as threshold phenomena the absence of which would not necessarily preclude the presence of organic or functional damage.

Our studies of hepatic function, using bilirubin retention and hippuric acid formation as indexes, are inconclusive in that they fail to show uniform impairment in all cases in which stilbestrol was administered. Liver function tests, probably because of the large reserve of this organ, are not very sensitive to small amounts of damage. Much more work along these lines will be necessary to establish this point, and such studies are in progress.

A consideration of the evidence furnished by this as well as other studies cited forces us to the conclusion that stilbestrol in its present form is not suitable for use in the human being. Whatever doubts may exist as to the nature of the side effects produced, it would be safer to confine the drug to experimental use for the present and until the significance of the side effects is better understood. The several advantages of the drug lead us to hope that the chemist will eventually be able to modify its structure so as to retain its favorable and eliminate its unfavorable properties.

CONCLUSIONS

1. Stilbestrol is actively estrogenic in the human being, capable of inducing follicular smears, vaginal cornification and withdrawal bleeding in amenorrhea and the menopause.

22. Bishop, Boycott and Zuckermann.[4] Winterton and MacGregor.[5] Kellar and Sutherland.[6]

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2. Less active than estradiol benzoate parenterally, stilbestrol is more efficient than the natural estrogens by mouth, losing but one half or less of its activity by this route. It is, however, less active than ethinyl estradiol by mouth. The oral estrogenic unit for the human being lies between 2 and 4 mg.

3. Stilbestrol is capable of relieving the subjective symptoms of the menopause.

4. In a series of forty-four cases treated, its use was associated in thirty-five (80 per cent) with toxic symptoms in the form of nausea, vomiting, abdominal distress, anorexia, diarrhea, lassitude, paresthesias, vertigo, thirst, an acute psychotic reaction and cutaneous rashes.

5. The toxic effects are largely central in origin, following injection as well as oral administration.

6. There is no relation between the size of the dose and the development of toxic reactions.

7. There is no evidence of an acquired tolerance to the drug.

8. Until the nature of the side effects of stilbestrol are understood, its use in the human being should be confined to experimental studies by qualified investigators.

EFFECTS OF THE THERAPEUTIC USE OF DIETHYLSTILBESTROL

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Diethylstilbestrol is a synthetic estrogen, the chemical and estrogenic properties of which were reported by Dodds, Lawson and Noble.[1] Extensive animal experimentation since has shown it to have more pronounced estrogenic effects when given by mouth than the naturally occurring estrogens, even when the latter are injected intramuscularly.

Guldberg [2] first reported the clinical use of stilbestrol in the case of a young castrate in whom he produced what he considered actual menstruation by stilbestrol and progesterone injection. Since then stilbestrol has been extensively used clinically in England and elsewhere with excellent therapeutic results in cases in which estrogen therapy is indicated.

Winterton and MacGregor [3] and Kellar and Sutherland [4] reported the frequent occurrence of nausea and vomiting following the administration of stilbestrol and that has been one of the main objections to its use. The possibility that the substance may have further toxic effects on the liver, kidney or hematopoietic system has led to the investigation of seventeen cases in which varying doses of stilbestrol were administered.

In these cases the following diagnostic procedures were carried out: complete blood counts, including platelets, urinalysis, serum protein partition, icteric index and the van den Bergh reaction.

Eleven of these patients were being treated for menopause symptoms, four for senile vaginitis, one for ovarian insufficiency and one for secondary amenorrhea. The cases were unselected except as follows: All menopause patients were first given a therapeutic trial on small doses of phenobarbital. Only those who did not respond to phenobarbital treatments received stilbestrol. No persons were treated who had a family history of mammary carcinoma.

The carcinogenic aspects of naturally occurring estrogens when injected into mice of a carcinoma strain is well known. Geschickter [5] has reported mammary carcinoma in normal rats not only with naturally occurring estrogens but also with stilbestrol.

The dosage of stilbestrol varied greatly, some patients receiving as little as 1 mg. a day for one week and others as much as 30 mg. a day for from fourteen to twenty-one days. One patient received 1,320 mg. over a period of four months. Improvement of symptoms had no relationship to the amount of medication given, 1 mg. a day having been found sufficient in some cases whereas as much as 30 mg. a day for twenty days was of no help in others.

Improvement of symptoms in menopause patients was judged entirely on a reduction or cessation of hot flushes. Patients kept a daily written record of the number of flushes in twenty-four hours. Two had no change, four had a reduction of more than half of the previous number and five reported entire disappearance of the hot flushes.

Patients with kraurosis vulvae, leukoplakia and senile vaginitis have been grouped under the latter heading for the sake of convenience. They received stilbestrol in the form of wool fat ointment. All have reported relief of symptoms, and the appearance of the local lesions has improved.

The patient with ovarian insufficiency complained of profuse irregular menstruation accompanied by headache and severe depression following a unilateral salpingo-oophorectomy. Following stilbestrol treatment her menstruation became normal and the other symptoms were relieved.

The patient with secondary amenorrhea is a 34 year old woman who had not menstruated for two years. Basal metabolism and other laboratory tests were normal. Stilbestrol was given for twenty-five days, and five days following this treatment the patient had a six day period of bleeding. This procedure has been repeated for three months with the same result. At the beginning of treatment the uterus was about 5 cm. in length and the uterine cavity so small that at the time of biopsy it would admit only the smallest type of curet. No endometrium was recovered. During the stilbestrol treatment the uterus has grown to normal size and the endometrium at biopsy shows normal proliferative endometrium, with an unusual amount of mitotic activity.

Nausea and occasional vomiting occurred in four of the seventeen cases. This proportion is smaller than that reported in other series, possibly because with a few exceptions the medication was placed in gelatin capsules. The occurrence of nausea and vomiting had no relationship to the amount of drug used. The vomiting was severe enough in one case to necessitate cessation of treatment. Otherwise it was transitory.

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From the Sloane Hospital for Women, the Department of Anatomy and the Department of Obstetrics and Gynecology, College of Physicians and Surgeons.

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Dizziness was mentioned in two cases but this symptom is difficult to evaluate because of its frequent occurrence without medication during the menopause.

One patient (16) with severe nausea and vomiting developed albuminuria and casts during the course of treatment. Her urine had been negative when examined several months before stilbestrol treatment, and although her other tests, including blood chemistry, were negative, it is possible that this evidence of toxicity may be attributed to stilbestrol.

the possible toxic hepatic effects of medications, the results are not considered in the conclusion of this series. None of the three patients mentioned showed toxic reactions clinically, and other generally accepted laboratory tests for liver damage were negative.

CONCLUSION

Although this series is not sufficiently large to permit a therapeutic evaluation of stilbestrol, the investigation of the possible toxic reactions of the substance has been sufficiently prolonged and intensive to justify conclusions concerning its toxic effects. The shortest period of clinical observation following treatment has been one month; most patients have been followed for from two to three months and several for six months. Laboratory investigation included complete blood counts, including platelets, urinalysis, serum protein partition, icteric index and van den Bergh reaction. As far as can be ascertained from these laboratory studies, no evidence of toxicity can be attributed to this estrogen in sixteen of seventeen cases treated. Toxicity possibly attributed to this substance was observed in one patient with positive urinary manifestations. There has been no evidence of allergic or urticarial phenomena.

Results of Treatment

Case No.	Age	Diagnosis	Treatment	New Symptoms Following Treatment	Time of Laboratory Test	Result	Result of Treatment
1	45	Menopause	1 mg. daily 2 weeks	None	Immediately after treatment	Negative	Excellent
2	52	Surgical menopause	10 mg. daily 2 weeks	Weak; occasionally dizzy	Immediately after treatment	Negative	Excellent
3	32	Ovarian insufficiency	20 mg. daily 2 weeks	None	One month after treatment	Negative	Excellent
4	65	Senile vaginitis	10 mg. salve daily	None	.....	.....	Excellent
5	58	Senile vaginitis	2 mg. salve daily	None	One and two months after treatment	Negative	Excellent
6	40	Menopause	30 mg. daily 27 days	None	Six days after treatment	PSP 30%,* albumin +, occasional casts	Poor
7	44	Menopause	30 mg. daily 2 weeks 10 mg. daily 1 week 1 month later 3 mg. daily 2 weeks 1 month later	Occasionally dizzy	Immediately after second treatment Immediately after third treatment	Negative	Excellent
8	43	Senile vaginitis	3 mg. ointment daily 2 weeks	None	Immediately after treatment	Negative	Excellent
9	44	Menopause	5 mg. daily 2 weeks then 1 (S) mg. daily	Nausea, vomiting once after treatment	Immediately after treatment	Negative	Fair
10	51	Menopause	10 mg. daily 2 weeks 10 mg. daily 1 week 1 week later 20 mg. daily 1 week later	Sore nipples	Immediately after first treatment Immediately after second treatment Immediately after third treatment Four months after last treatment	Negative Negative Negative	Poor
11	50	Menopause	1 mg. daily 1 week 2 mg. daily 5 weeks	Nausea	Immediately after first treatment Immediately after second treatment Ten days after second treatment	Negative Negative Negative	Excellent Excellent
12	34	Secondary amenorrhea	30 mg. daily 25 days 10 mg. daily 37 days	None	Immediately after first treatment Immediately after second treatment Three months after second treatment	Negative	Excellent
13	60	Senile vaginitis	10 mg. daily 1 week, salve 3 mg. daily 3 weeks	None	Immediately after first treatment Immediately after second treatment	Negative	Good
14	43	Menopause	10 mg. daily 1 week	Nausea	Immediately after first treatment	Negative	Fair
15	45	Radium menopause	5 mg. (S) 1 day 1 mg. daily 20 days	None	Immediately after first treatment	Negative	Excellent
16	53	Radium menopause	5 mg. (S) 1 day 1 mg. daily 22 days	Nausea; vomiting	Immediately after first treatment	Albumin in urine 5%, occasional coarse and granular casts	Fair
17	45	Radium menopause	1 mg. (S) daily 25 days	None	Immediately after first treatment	Negative	Fair

All treatments except those marked with S were given in gelatin capsules.

* This patient complained of hypertensive cardiovascular disease and syphilis. The urinary manifestations were present before treatment began; consequently these were not attributed to stilbestrol.

The Hanger cephalin flocculation test [6] has also been carried out in a routine way on all patients. This is a new method being developed for determination of the degree of irritation of liver parenchyma. It is used as a differential diagnostic factor in the diagnosis of hepatitis. Three patients in this series have shown slight reactions to this test, indicating possible irritation of the hepatic parenchyma. As the significance of positive reactions to this test has not as yet been subject to extensive clinical trial, especially with regard to

6. Hanger, F. M.: Serological Differentiation of Obstruction from Hepatogenous Jaundice by Flocculation of Cephalin-Cholesterol Emulsions, J. Clin. Investigation **18**: 261 (May) 1939; Flocculation of Cephalin-Cholesterol Emulsions by Pathological Sera, Tr. A. Am. Physicians **53**: 144, 1938.

The therapeutic results coincide with those reported in larger series. It is evident that this oral estrogen is at least as effective in ameliorating the symptoms attributed to estrogen deficiency as other therapy by injection and is much more convenient for the patient. The nausea and vomiting is not thought to be a contraindication to the use of stilbestrol. These symptoms may be partially avoided by the use of gelatin capsules.

It should be borne in mind by the clinician that stilbestrol and the naturally occurring estrogens—estrone, estradiol and others—are not innocuous substances but act on various organs and functions of the body not intimately related to the gonads. The actions of estrogens in any or all species of animals, in causing squamous cell metaplasia of both genital and extragenital tissues, of a direct effect on the anterior pituitary gland and other less definite but alleged effects have not been as yet clearly demonstrated in the human being. However, the observed effects in women and the abundance of data on progressive effects in animals should raise a reasonable doubt in the mind of the clinician that these substances may be given with impunity.

In particular, as stated, patients with a family history of carcinoma should not be given extensive courses of estrogenic therapy.

It appears evident that, with so potent a chemical easily available and widely used, one of the tasks confronting the clinician is to clarify the indications for estrogenic treatment and to watch for latent posttherapeutic results.

STUDIES ON STILBESTROL

PRELIMINARY STATEMENT

CYRIL M. MacBRYDE, M.D.
HAROLD FREEDMAN, M.D.
AND
ELLEN LOEFFEL, M.D.
ST. LOUIS

At the request of Dr. Barr, we are making this preliminary report to the Council.

Beginning in March 1939 we undertook studies of the new synthetic estrogen, diethylstilbestrol. We have studied thirty-seven patients in all, twelve of whom had had both ovaries removed, five part but not all of the ovarian tissue removed, five patients with marked hypogonadism and amenorrhea, and fifteen patients with severe symptoms of spontaneous menopause.

We have found diethylstilbestrol to be very actively estrogenic when given orally, as well as when administered by injection. The symptoms of hypogonadism have been relieved and there have been marked estrous changes in the vaginal smears and endometrial biopsies. Considerable breast growth has been produced and withdrawal bleeding can be produced almost at will. The doses necessary to produce these effects ranged from 0.1 mg. to 5 mg. by mouth or by injection daily.

We have not found the very high incidence of toxic effects reported by some observers. Nausea occurred in eight cases, or approximately 21 per cent of our series. Vomiting occurred in three cases after large doses but ceased when the dose was reduced. To two patients the preparation has been administered in daily doses of 5 mg. by injection for six months without any subjective or objective evidences of toxicity. The average dose employed has been 1 mg. by mouth or by injection daily. No cutaneous reactions were observed. There were no changes noted on urine examination. Complete blood studies conducted in all cases in which large amounts were administered over long periods have failed to reveal any change in the red blood cells, white blood cells, platelets or hemoglobin content. Repeated tests of liver function performed on the nine patients who received the largest doses and were treated for the longest periods failed to reveal evidence of diminished hepatic function. The liver function tests employed were estimation of the icterus index, bromsulphalein excretion, hippuric acid synthesis, galactose tolerance tests, and blood prothrombin estimations.

Animal studies that we have conducted at the same time have shown that with very large doses thrombocytopenia and purpuric manifestations can be produced. Animals receiving from two to ten times the therapeutic dose as computed by body weight have as yet failed to show any toxic manifestations.

In none of the patients treated has it been necessary to withdraw the preparation because of toxic manifestations. Nausea was produced more easily by oral treatment but occurred also after injections. Changing from parenteral to oral therapy or reducing the size of the dose has always caused disappearance of the nausea in our cases.

Our data are now almost completely assembled, and a full report will be published in the near future.

From the Department of Medicine, Washington University School of Medicine.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

GASTRIC MUCIN.—The fraction precipitated by approximately 60 per cent alcohol from the supernatant liquid after pepsin-hydrochloric acid digestion of hog stomach linings.

Actions and Uses.—Gastric mucin is prepared for use in the treatment of peptic ulcers.

Dosage.—Average dose 2.5 Gm., which can be given at two hour intervals.

Gastric mucin occurs as a white to yellow powder or brownish yellow granules. It possesses a slightly salty taste and characteristic odor indicative of peptones. Both forms yield a viscous, gray, opalescent solution when triturated with water.

Dry approximately 1 Gm. of gastric mucin, accurately weighed, to constant weight at 100 C.: the loss in weight does not exceed 6 per cent.

Incinerate approximately 1 Gm. of gastric mucin, accurately weighed, in a muffle furnace at 500 C.: the ash content does not exceed 6.5 per cent.

Transfer a 10 Gm. sample of gastric mucin to a 125 cc. Erlenmeyer flask and add 100 cc. of 70 per cent ethanol (737 cc. of U. S. P. ethanol diluted to 1 liter). Stopper the flask, shake the mixture for thirty minutes and decant the supernatant liquid. Repeat this addition of alcohol and extraction for a total of six times. Measure the combined extracts and filter a portion through a dry filter paper. Evaporate 50 cc. of the filtrate to dryness, dry at 100 C. and 72 cm. of mercury to constant weight, and calculate the dry weight, *S*, in the total volume of alcohol. The mucin content, calculated as $(10-S) \times 10$, is not less than 73 per cent nor more than 90 per cent.

Determine the nitrogen content in the dried alcohol insoluble residue (described in the foregoing paragraph) by the Kjeldahl method according to Methods of Analysis of the Association of Official Agricultural Chemists, ed. 4, page 23: the nitrogen content is not less than 7.0 nor more than 9.0 per cent.

Transfer 0.1 Gm. of the dried alcohol insoluble residue as previously obtained to a 125 cc. Erlenmeyer flask and add 50 cc. of two-normal sulfuric acid. Digest on a steam bath under a reflux condenser for three hours and dilute to 100 cc. Transfer 4 cc. of this solution to a 25 by 200 mm. test tube, add 1 drop of phenolphthalein and neutralize with 30 per cent sodium hydroxide. Add 5 cc. of standard copper reagent [Twenty-five Gm. of anhydrous sodium carbonate, 20 Gm. of sodium bicarbonate and 25 Gm. of sodium potassium tartrate is dissolved in 600 cc. of distilled water; 7.5 Gm. of $CuSO_4.5H_2O$ is dissolved in 100 cc. of water and introduced with constant stirring into the carbonate-tartrate solution through a funnel resting on the bottom of the container. To the solution add 5 Gm. of potassium iodide and 22 cc. of an alkaline standard normal solution of potassium biiodate (32.498 Gm. of potassium biiodate

and 83.3 cc. of normal sodium hydroxide made up to 1 liter). The resultant solution is made up to exactly 1,000 cc.] and make up to 10 cc. Cover the test tube with a small beaker and suspend it in boiling water for fifteen minutes and then cool in a pan of cold water without shaking. Add 5 cc. of normal sulfuric acid and after one minute titrate with 0.005 normal sodium thiosulfate, using starch as an indicator. The sodium thiosulfate is standardized against the 0.022 normal copper sulfate-iodate reagent, 5 cc. of which should require 22.0 cc. of the thiosulfate. The difference between this control figure and the number of cubic centimeters of thiosulfate used in the determination should not be less than 8.6 nor more than 12.2 cc.; that is, not less than 25 per cent nor more than 35 per cent of reducing material, calculated as dextrose in the alcohol insoluble material.

Prepare a 2 per cent solution of gastric mucin by triturating 2 Gm. of mucin with 100 cc. of water and passing it through a 60 mesh screen. Determine the *ph* of this solution by means of a glass electrode at 25 C.: the *ph* is not below 3.7 nor above 6.8. Determine the viscosity of this solution at 25 C. within one hour by means of a 10 cc. Mohr pipet and compare it with water: the relative viscosity is not below 1.30 nor above 3.50.

Gastric Mucin-Armour.—A brand of gastric mucin-N. N. R.

Manufactured by the Armour Laboratories, Chicago, by license from the Gastric Mucin Committee of Northwestern University Medical School under U. S. patent 1,829,270 (Oct. 27, 1931; expires 1949). No U. S. trademark.

Gastric Mucin Powder-Armour.

Gastric Mucin Granules-Armour.

Gastric Mucin-Stearns.—A brand of gastric mucin-N. N. R.

Manufactured by Frederick Stearns & Co., Detroit, Mich., by license from the Gastric Mucin Committee of Northwestern University Medical School under U. S. patent 1,829,270 (Oct. 27, 1931; expires 1949). No U. S. trademark.

Gastric Mucin Powder-Stearns.

Gastric Mucin Granules-Stearns.

Gastric Mucin-Wilson.—A brand of gastric mucin-N. N. R.

Manufactured by the Wilson Laboratories, Chicago, by license from the Gastric Mucin Committee of Northwestern University Medical School under U. S. patent 1,829,270 (Oct. 27, 1931; expires 1949). No U. S. trademark.

Gastric Mucin Powder-Wilson.

Gastric Mucin Granules-Wilson.

ASCORBIC ACID (Cevitamic Acid) (See New and Nonofficial Remedies, 1939, p. 499).

The following dosage form has been accepted:

I. V. C. Ascorbic Acid Tablets: Each tablet contains not less than 0.025 Gm. of ascorbic acid, equivalent to 500 international units of vitamin C per tablet.

Prepared by the International Vitamin Corporation, New York.

THIAMIN CHLORIDE (See New and Nonofficial Remedies, 1939, p. 498).

The following dosage forms have been accepted:

I. V. C. Thiamin Chloride Crystalline Tablets, 0.5 mg.: Each tablet contains 0.5 mg. of thiamin chloride, equivalent to 166 international units of vitamin B_1.

Prepared by the International Vitamin Corporation, New York. No U. S. patent or trademark.

I. V. C. Thiamin Chloride Crystalline Tablets, 1.0 mg.: Each tablet contains 1.0 mg. of thiamin chloride, equivalent to 333 international units of vitamin B_1.

Prepared by the International Vitamin Corporation, New York. No U. S. patent or trademark.

I. V. C. Thiamin Chloride Crystalline Tablets, 3.3 mg.: Each tablet contains 3.3 mg. of thiamin chloride, equivalent to 1,100 international units of vitamin B_1.

Prepared by the International Vitamin Corporation, New York. No U. S. patent or trademark.

SODIUM CITRATE 2½% W/V IN PHYSIOLOGIC SOLUTION OF SODIUM CHLORIDE IN TRANSFUSO-VAC CONTAINER-BAXTER.—A 2.5 per cent solution of sodium citrate in physiologic solution of sodium chloride contained under reduced pressure in a specially adapted bottle.

Actions and Uses.—For indirect blood transfusion. The flow of blood from the needle in the donor's vein into sterile citrate solution in an evacuated container is controlled by a simple valve. The blood is administered to the recipient by gravity flow and is completely filtered during administration.

Manufactured by Baxter Laboratories, Inc., Glenview, Ill. (American Hospital Supply Corporation, Chicago, distributor). U. S. patent 1,941,071; additional U. S. patent pending. U. S. trademark 365,142.

Sodium Citrate 2½% W/V in Physiologic Solution of Sodium Chloride in Transfuso-Vac Container, 35 cc., Baxter: Contains 2.5 per cent sodium citrate in physiologic sodium chloride solution.

Sodium Citrate 2½% W/V in Physiologic Solution of Sodium Chloride in Transfuso-Vac Container, 70 cc., Baxter: Contains 2.5 per cent sodium citrate in physiologic sodium chloride solution.

Sodium Citrate 2½% W/V in Physiologic Solution of Sodium Chloride in Transfuso-Vac Container, 105 cc., Baxter: Contains 2.5 per cent sodium citrate in physiologic sodium chloride solution.

Sodium citrate 2½% W/V in physiologic solution of sodium chloride is a clear colorless, odorless solution possessing a salty taste. It is contained, under a pressure of approximately 8 cm. of mercury, in a bottle which can be equipped with an accompanying valve to regulate the inflow of liquids. The solution responds to the qualitative tests for sodium, chlorides and citrates as given in the U. S. Pharmacopeia under Sodium Citrate and Sodium Chloride respectively.

Insert the closed valve in the bottle and attach the valve outlet to a manometer; slowly open the valve: the mercury rise indicates a maximum internal pressure of 120 mm. at 25 C.

The *ph* of the solution, as determined by means of a glass electrode, should not be above 7.5 nor below 6.7. Evaporate a 25 cc. sample in a tared platinum dish to dryness on the steam bath and dry to constant weight at 120 C.: the weight of the residue is not more than 0.880 Gm. nor less than 0.800 Gm. Carefully ignite this residue until the ash is white, care being taken not to heat the dish above a dull red. Cool and transfer the dish and contents to a 250 cc. beaker; add 17.5 cc. of half-normal sulfuric acid and 30 cc. of water, and digest the mixture on the steam bath for one hour. Filter the solution, wash the residue carefully, and titrate the filtrate with tenth-normal sodium hydroxide, using methyl orange as an indicator: the calculated sodium citrate content is not more than 2.60 Gm. nor less than 2.30 Gm. per hundred cubic centimeters.

NICOTINIC ACID (See New and Nonofficial Remedies, 1939, p. 495).

Nicotinic Acid-N. Y. Q.—A brand of nicotinic acid-N. N. R.

Manufactured by the New York Quinine and Chemical Works, Inc., Brooklyn, N. Y. No U. S. patent or trademark.

FERROUS SULFATE, DESICCATED.—Exsiccated Ferrous Sulfate.—Dried Ferrous Sulfate.—"Exsiccated Ferrous Sulfate contains the equivalent of not less than 80 per cent of anhydrous ferrous sulfate [$FeSO_4$]."—*U. S. P. X.*

Actions and Uses.—The product is generally administered in the form of pills, for the purpose of increasing the hemoglobin of the blood. It was formerly official in the U. S. P. X but was omitted from the U. S. P. XI. Its advantages over the official hydrous preparation are its physical properties (the hydrated material is difficult to capsulate).

Dosage.—From 0.3 to 0.6 Gm. (5 to 10 grains) daily.

Manufactured by Lederle Laboratories, Inc., Pearl River, N. Y. No U. S. patent or trademark.

Dried Ferrous Sulfate Capsules 0.33 Gm. (5 grains): Each capsule contains approximately 0.33 Gm. (5 grains) of dried ferrous sulfate, which is equivalent to about 0.11 Gm. of metallic iron.

Desiccated ferrous sulfate occurs as an odorless, tasteless, grayish white powder. It dissolves slowly but almost completely in water and is insoluble in alcohol. When ignited, the salt rapidly darkens to a red-brown colored powder.

Place about 1 Gm. of desiccated ferrous sulfate in a stoppered graduated cylinder, add 20 cc. of recently boiled and cooled distilled water, stopper tightly and shake the mixture until solution is nearly complete, filter the solution rapidly and divide the filtrate into four portions; to one portion add 1 cc. of potassium ferricyanide solution: a dark blue precipitate soluble in hydrochloric acid but is decomposed by sodium hydroxide, results; to another portion add 1 cc. of sodium hydroxide: a greenish yellow precipitate forms which changes rapidly to green-brown and finally to brown on shaking in air; to another portion add 1 cc. of barium chloride solution: a white precipitate, insoluble in hydrochloric and nitric acids; to the last portion add five drops of lead acetate solution: a white precipitate soluble in excess ammonium acetate results.

Dry about 2 Gm. of desiccated ferrous sulfate, accurately weighed, to constant weight at 100 C.: the loss does not exceed 1 per cent. Dissolve the foregoing dried salt in about 90 cc. of water, add 10 cc. of nitric acid and boil to expel oxides of nitrogen. Pour while hot, with stirring, into a mixture of 10 cc. of water and 20 cc. of ammonium hydroxide; filter and wash the precipitate with water until the volume of the filtrate and washings is 250 cc.; evaporate 100 cc. of the filtrate to dryness and ignite: a residue of not more than 0.1 per cent remains *(alkalis and earths)*; dissolve another 100 cc. portion of the filtrate with glacial acetic acid and add 1 cc. in excess, followed by 2 cc. of fresh potassium ferrocyanide solution; neither a pink color nor a turbidity is produced in ten minutes *(copper and zinc)*.

Transfer about 5 Gm. of desiccated ferrous sulfate, accurately weighed, to a 100 cc. stoppered calibrated flask, add 50 cc. of recently boiled and cooled distilled water, 2 cc. of sulfuric acid, and finally fill to the mark with water; stopper the flask tightly, allow the salt to dissolve and mix thoroughly: the resultant solution possesses a pale green color and is but slightly turbid; filter through a tared sintered-glass crucible and dry at 110 C.: the residue does not exceed 0.1 per cent.

Transfer about 0.75 Gm. of desiccated ferrous sulfate, accurately weighed, to a 100 cc. Erlenmeyer flask, dissolve in 20 cc. of diluted sulfuric acid and titrate immediately with tenth-normal potassium permanganate: the content of anhydrous ferrous sulfate [$FeSO_4$] is not less than 80 per cent nor more than 89 per cent.

LIQUID PETROLATUM (See New and Nonofficial Remedies, 1939, p. 300).

Mead's Mineral Oil with Malt Syrup: An emulsion of white mineral oil with malt syrup. White mineral oil 50 cc., with acacia and gum tragacanth, is dispersed in malt syrup. The malt syrup is prepared by malting a mixture containing approximately 80 per cent of barley and 20 per cent of corn starch. The mixture is standardized, and 2 cc. of alcohol is added to make 100 cc. The percentage by weight composition of the emulsion is as follows: malt syrup (78 per cent solid) 54 per cent, mineral oil 38 per cent, water 5.5 per cent, alcohol 1.4 per cent, acacia 1 per cent and gum tragacanth 0.1 per cent.

Prepared by Mead Johnson & Company, Evansville, Ind. No U. S. patent or trademark.

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SATURDAY, DECEMBER 23, 1939

THE PLATFORM OF THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association advocates:

1. The establishment of an agency of the federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy.

2. The allotment of such funds as the Congress may make available to any state in actual need, for the prevention of disease, the promotion of health and the care of the sick on proof of such need.

3. The principle that the care of the public health and the provision of medical service to the sick is primarily a local responsibility.

4. The development of a mechanism for meeting the needs of expansion of preventive medical services with local determination of needs and local control of administration.

5. The extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration.

6. In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established.

7. The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability.

8. Expansion of public health and medical services consistent with the American system of democracy.

THE PITUITARY GLAND AND WATER DIURESIS

The conception has been advanced that the kidney, under normal conditions and with respect to tubular activity in the reabsorption of water, is subject to stimulation by the antidiuretic hormone, the degree of stimulation being proportional to the amount of hormone present in the blood and, consequently, to the rate of pituitary secretion. Furthermore, the secretion of the pituitary may be governed in turn by nervous stimuli or by changes in the composition of the blood transmitted to the gland through mediation of the central nervous system. This theory of a control of urine volume by the pituitary is attractive and has been called on to explain variations in water excretion which occur under diverse circumstances, including water diuresis.

Reports conflict with regard to proof of the presence of antidiuretic hormone in body fluids in concentrations which vary with physiologic variations in urine volume. As pointed out by Walker,[1] it seems essential to the acceptance of the theory that this proof be furnished. Because of the importance of investigations which throw light on this side of the problem, the observations of Gilman and Goodman[2] have attracted considerable attention and have already been discussed in THE JOURNAL.[3] This study indicated the presence of antidiuretic substance in the urine of dehydrated rats but not in the urine of normal control animals and also not in the urine of dehydrated hypophysectomized rats. With regard to the excretion of antidiuretic principle by dehydrated rats, the observations of these workers have in general been corroborated by Bolyston and Ivy,[4] and similar results have also been reported for cats by Ingram and his associates.[5] The recent investigation of Walker[1] on the occurrence of antidiuretic substance in the urine, blood and cerebrospinal fluid of various animals deserves particular mention because the results obtained failed to disclose definitive support for the pituitary hormone theory of water diuresis. Although an antidiuretic potency which appeared to be peculiar to dehydrated animals could be demonstrated in rabbit blood and rat urine, prolonged experimentation indicated that the antidiuretic material in the latter was not identical with the antidiuretic fraction of pituitary secretion. Indeed it was found that alteration in the experimental conditions of the method used for detecting antidiuretic material permitted the demonstration of an antidiuretic effect in the urine of hydrated as well as dehydrated rats and also in the urine of several rats which had been completely hypophysectomized. Moreover, the presence of the pituitary gland was found to be unnecessary for the occurrence of antidiuretic substance in the urine of cats, since it was found in essentially unaltered amounts in hypophysectomized specimens in a number of cases. It is also noteworthy that the cerebrospinal fluid of pituitarectomized as well as normal dogs possessed an antidiuretic effect. Walker also studied the response of pituitarectomized animals to water administration and withdrawal; he found it to be similar to that of normal animals, indicating that in this case some mechanism other than the posterior lobe of the pituitary gland is capable of effecting alteration in the urine volume. In this connection it may be recalled that Newton and Smirk,[6] in a study on the pituitary gland in relation to water diuresis, have reported that a natural control of this process may be present in decerebrate cats with total hypophysectomy.

Particularly in view of the results of the recent experimental study of Walker, it would appear that there is some doubt as to the origin of the antidiuretic substance which has been detected in the urine as well as

1. Walker, A. M.: Am. J. Physiol. **127**: 319 (Oct.) 1939.
2. Gilman, Alfred, and Goodman, Louis: J. Physiol. **90**: 113 (July) 1937.
3. Antidiuretic Hormone of the Posterior Pituitary, editorial, J. A. M. A. **109**: 1545 (Nov. 6) 1937.
4. Bolyston, G. A., and Ivy, A. C.: Proc. Soc. Exper. Biol. & Med. **38**: 644 (Jan.) 1938.
5. Ingram, W. R.; Ladd, L., and Benbow, J. T.: Am. J. Physiol. **127**: 344 (Oct.) 1939.
6. Newton, W. H., and Smirk, F. H.: J. Physiol. **81**: 172 (May) 1934.

in the blood and cerebrospinal fluid of a number of animals under certain experimental conditions. The role of the pituitary in the mechanism responsible for controlling water diuresis requires additional elucidation. Because of the theoretical and practical importance of the problem of excretion of water by the kidney, further developments which throw more light on this problem will be awaited with interest.

PHYSICIAN AND PHARMACOPEIA

THE JOURNAL on previous occasions has criticized the machinery for the production of the U. S. Pharmacopeia, pointing out that the decennial convention occasionally has been controlled unduly by the pharmaceutic interests.[1] That the criticism is cogent may be confirmed easily when one refers to the proceedings of the 1930 convention. Medicine has not received its just representation because fewer physicians than pharmaceutic representatives have been appointed for the decennial convention. While it is true that each incorporated state medical association and each incorporated medical college and each medical school connected with an incorporated college or university is entitled to send three delegates to the Pharmacopeial Convention, state medical societies and medical colleges hesitate to incur the expense of sending three delegates. For that reason the Board of Trustees of the American Medical Association, the Council on Pharmacy and Chemistry and THE JOURNAL have suggested[2] that the evils of one-sided representation could be corrected if only one vote was recorded for an organization. The next convention meets the second Tuesday in May 1940 at Washington. Its deliberations will inaugurate any new procedures that may be possible for the better conduct of future conventions. The committee which it appoints will be the one that will largely determine the policies of the U. S. Pharmacopeia XII.

The Pharmacopeia is significant particularly because of its relation to the present Food, Drug and Cosmetic Act. The Pharmacopeia has been the book which describes the standards for many drugs and some medical appliances, such as catgut and absorbent cotton. The law provides that the Food and Drug Administration of the U. S. Department of Agriculture may enforce these standards. In its cooperation the medical profession must meet the reasonable demands set forth previously,[2] particularly proper representation and the determination of the therapeutic scope of the Pharmacopeia. Every state medical society should send to the convention the three delegates to which it is entitled. The selection of these delegates, such as pharmacologists or practitioners, should be along the lines laid down by THE JOURNAL ten years ago.[3] A delegate need not necessarily be a resident of the state in which the society or school is located, but he should know the policies of the group he represents. Because of an outworn provision only persons who attend the decennial convention are eligible for membership on the Revision Committee. This stipulation should be kept in mind in the selection of proper representatives.

In the 1930 convention only three state medical societies had full representation, and half of the state medical societies did not have any representatives. Medical schools did better; twelve sent three delegates each, but forty schools were represented by only seventy-one representatives instead of the 120 to which they were entitled. Other medical schools failed to send delegates. If this situation is repeated in 1940, the Pharmacopeial method of procedure may again fail to be revised to meet the difficult issues which have developed.

1. The Pharmacopeial Convention, editorial, J. A. M. A. 94:1707 (May 24) 1930.
2. The Call for the Pharmacopeial Convention of 1940, editorial, J. A. M. A. 113:1969 (May 13) 1939.
3. The Call for the Appointment of Delegates to the United States Pharmacopeial Convention, J. A. M. A. 93:989 (Sept. 28) 1929.

ESTROGEN THERAPY—A WARNING

The last ten years has seen a remarkable development in our knowledge of the endocrines. Especially great strides have been made in the therapeutic application of sex hormones, notably the estrogenic substances. Pure highly potent preparations of estrogens are being manufactured. Furthermore, biochemists are constantly striving to discover new compounds of even greater activity or to increase the efficiency of those already known. Pharmaceutic chemists are looking for better preparations which may be protected by patent. Much attention has been given to the preparation of estrogens for oral use, since the advantages of such therapy over hypodermic administration are appreciable.

Two new compounds—ethinyl estradiol and diethylstilbestrol—have been used clinically in recent months and have been shown to be as effective as the injected estrogens in moderate doses. General acceptance of these compounds has been prevented by complaints of disagreeable symptoms following their ingestion. Ethinyl estradiol induced in a considerable percentage of patients nausea, vomiting, headache and malaise. Diethylstilbestrol, however, has been prescribed, especially in England. The reports as to the toxic reactions of this substance are quite conflicting, some investigators stating that gastric distress is the only complaint, that this is experienced by from 5 to 10 per cent of the patients, and that it vanishes after a few days of administration. Others have found side reactions in greater numbers. One group of American investigators has observed as high as 80 per cent of the patients exhibiting untoward reactions, including cutaneous eruptions, psychosis, lassitude and liver damage. Apparently a thorough investigation of this compound is in order before it can be prescribed for routine therapy. In this issue of THE JOURNAL (p. 2312) will be found a statement of the Council on Pharmacy and Chemistry on the present status of stilbestrol; also three articles published under its auspices.

The conflicts in the reports on these substances and the opinions of some authorities on the possible harm from estrogen therapy should warn against long continued and indiscriminate therapeutic use of estrogens. Like numerous other therapeutic agents estrogens are effective under the proper circumstances, but there may be definite danger when they are used unscientifically. In this connection the possibility of carcinoma induced by estrogens cannot be ignored. The long continued administration of these proliferating agents to patients with a predisposition to cancer may be hazardous. The idea that estrogens are related in their activity only to sex organs should be abandoned. Other tissues of the body may react in an undesirable manner when the doses are excessive and over too long a period. This point should be firmly established, since it appears likely that in the future the medical profession may be importuned to prescribe to patients large doses of high potency estrogens, such as stilbestrol, because of the ease of administration of these preparations.

Current Comment

TREATMENT OF PNEUMONIA

So much has been published concerning the newer methods of treating pneumonia that it is often difficult to determine what is a practical procedure. Recently, however, the Maryland State Department of Health, through its Pneumonia Control Committee, has released its recommendations to the profession. The first recommendation is that every effort be made to obtain sputum for typing at each visit, unless the type of infecting pneumococcus has already been determined. Suitable containers for collecting specimens are provided by the board and specimens should be sent to county or state laboratories as soon as obtained. Sulfapyridine therapy should be begun as soon as the diagnosis of pneumonia is made. The initial dose for an adult (any patient over 14) should be 60 grains (4 Gm.) followed by 15 grains (1 Gm.) every four hours until the temperature has been normal for forty-eight hours; thereafter 15 grains is given four times a day until resolution is well under way or the patient's temperature has been normal for four days. Finally, 7½ grains (0.5 Gm.) is given four times a day until the patient is ready to leave bed. Directions are also given for adding salt if vomiting is present, for including sodium bicarbonate and for giving at least 4 quarts (liters) of fluid each day during which sulfapyridine is administered. Children weighing under 40 pounds (18 Kg.) are given 1 grain (0.065 Gm.) of sulfapyridine per pound of body weight as an initial dose. After this one fourth of the initial dose is given four times daily for the next four days, at the end of which time the dose is halved and continued until the temperature is normal for at least five days. The drug should be withheld from patients who have developed drug fever or rash, anemia, jaundice or leukopenia during a previous course of sulfanilamide or sulfapyridine therapy. Warning is issued to discontinue the drug immediately should such well known symptoms as anemia, leukopenia, hematuria, jaundice, drug fever or drug rash appear. Sulfapyridine is placed in the hands of each county health officer for free distribution when certified as necessary by the physician. The department of health through its regional laboratories and through specially trained public health nurses also provides an alternate day laboratory service of blood counts which, the committee believes, supplemented by careful clinical observations, offers a reasonable safeguard against serious toxic effects. This service is supplied free, when requested, by a public health nurse. The recommendations made by this committee not only constitute excellent medical practice but also are completely practicable and are readily adaptable to many states.

TUBERCULOSIS IN YOUNG CHILDREN

Knowledge of the pathogenesis of pulmonary tuberculosis in small children has been previously extended by some of the studies at the Lymanhurst Health Center of Minneapolis during recent years. Now Tortone and his colleagues[1] report a follow-up study of 4,328 children who received tuberculin tests on entering the clinic. Of these, 79.1 per cent had negative and 16.4 per cent had positive tuberculin reactions when first tested; in the remaining 4.5 per cent the results of the initial tuberculin test were inconclusive. The x-ray study of more than 1,700 children not sensitive to tuberculoprotein failed to reveal lesions suggestive of tuberculosis. Of the 701 children who were sensitive to tuberculin when first tested, the initial x-ray examination disclosed no lesion in 268, calcification in 286 and pneumonic infiltrations in 155. The incidence of pneumonic infiltration interpreted as primary pulmonary tuberculosis in the acute inflammatory stage of development decreased gradually with advancing age. Of the 629 children with positive tuberculin reactions on entrance who were traced for an average period of about five years, ten had died of tuberculosis, five under 1 year of age and five between 1 year and 2. Eight of these children who died had remained in intimate contact with persons in their respective homes who were known to have open tuberculosis. The pneumonic primary infiltration found on the x-ray examinations of 146 tuberculin sensitive children who controlled and survived this form of the disease resolved spontaneously in each instance. This resolution left the lungs roentgenographically normal in 100 children and produced Ghon tubercles in forty-six. Of the 3,424 children who failed to react to tuberculin on the first test, 157 later became sensitive to tuberculoprotein. X-ray studies made after these primary infections revealed normal lungs in ninety-one, pneumonic infiltration in seventeen and intrathoracic deposits of calcium in forty-nine. None of these children died of tuberculosis in the period during which they were followed. It may be concluded from these studies that primary tuberculosis in young children in Minneapolis tends to be a relatively benign disease and that they control and survive infection with tubercle bacilli much more often than was formerly considered possible.

1. Tortone, José; Chattás, Alberto; Myers, J. A.; Stewart, C. A., and Streukens, Theodore: Tuberculosis in Children Less Than Six Years of Age, Am. J. Dis. Child. 58:92 (July) 1939.

ORGANIZATION SECTION

THE SMALL COMMUNITY HOSPITAL AS A TEACHING HOSPITAL

J. T. MORRISON, M.D.
NEW YORK

Why cannot a fifty-bed community hospital render a service on the firing line, as it were, of medical practice such as is rendered by a teaching hospital? The consensus is that a teaching hospital is a hospital organized for the purpose of undergraduate teaching and intern training and attached to, or administered by, a medical school. Such a hospital is thoroughly organized into medical and administrative departments, each with its own chief who directs its efforts, supervises its work and inspires its teaching activities. The staff at such a hospital naturally gives attention to the detail of clinical records in order to develop a basis for medical literature, establishes a minimum standard of diagnostic procedure as a guide for those ministering to patients, makes detailed laboratory and x-ray studies of each patient to support the clinical observations and study the effects of disease, arranges for clinical pathologic conferences or staff conferences to pool experience, and organizes seminars and journal clubs which all staff members must attend. All this is considered necessary in a teaching hospital as general opinion visualizes such an institution, in order to teach undergraduates and interns the best medical practice, the most scientific approach to the study of illness and the methods of seeking and obtaining medical information.

This conception of a teaching hospital does not fit the small rural hospital. It lays emphasis on a pyramid type of staff organization and places responsibility on the department heads for the continued study of the art and science of medicine. A resident physician in a fifty bed rural hospital recently remarked that there is so much clinical material available at the hospital that he would need at least thirty-six hours in every day in which to study it, to do the patient justice and to make it most valuable to him. His use of the two concepts clinical material and study are fundamental and a real lead in developing the teaching ideal as it applies to the small hospital. Teaching is based on the study of illness. What is there in environment causing it and how can it be most successfully diagnosed and treated? Therefore in attacking these problems a teaching hospital should be found wherever there is a patient in a hospital and wherever there are inquiring minds on the staff of physicians attending the patients. Following this ideal, staff members approaching the study and care of illness with the spirit of critical analysis of each patient should be able to make teaching material from even the so-called routine medical work they are called on to handle in their day to day hospital practice.

Since the care of the patient is medical practice and the acquisition of experience important, one of the most important steps in teaching is the pooling of the individual experience of each physician with that of others in a common fund of knowledge. In the community hospital where there are no department heads and the staff organization is horizontal, this can be done best in the hospital staff meeting, provided of course the staff members approach their meeting with the spirit of critically analyzing and freely discussing their experience. Staff leadership in terms of individuals may be officially vested in elected chairmen and appointed committees, but staff leadership providing the stimulus for a high quality of medical work is unofficially vested in the consensus of the staff as a group. A concerted will to share experience, submerge individual personalities and establish a real give and take of critical judgment is the only sound basis for a teaching hospital. Every physician of the staff is both instructor and pupil.

Patients entering such a hospital know that under the standard of the hospital a real study of their illnesses will be made before treatment is undertaken. They know that their illnesses will receive the benefit of collective opinion of the entire staff. The staff in setting up such a standard makes each individual member responsible to the staff as a group for the maintenance of good quality of medical work. In setting this standard the staff is establishing a teaching hospital.

A staff that pools its experience in staff meeting and that sets up a minimum standard of diagnostic and therapeutic practice will quite naturally give attention to the development of another activity which, for want of a better word, is called "consultation." This might well be the informal interchange of thought and experience between staff members in their day to day hospital experience. In some hospitals the minimum standards may specify that all instances of serious illness likely to result in death or the interruption of a known, suspected or possible pregnancy shall have the benefit of written counsultation with another staff member. The majority of consultations, however, are quite informal, two or more physicians of the staff viewing the patient and studying the illness as a complete entity with the added knowledge of the patient's home life in the community to assist them in reaching a conclusion. For future reference the second physician adds a note in the progress notes to indicate his observations, his line of thought and his conclusions, but the real interchange of information takes place in the corridor or the staff library. In other words, patients admitted to the hospital have the benefit of the experience of more than one of the physicians of the community. In one community hospital 25 per cent of all patients admitted last year had the benefit of written consultation as determined from the clinical records. Such a report of written consultations indicates the possibility that at least another 25 per cent of patients had the benefit of consultations which were not recorded. The hospital is a teaching hospital.

There is a considerable amount of drudgery to the preparation of a clinical record, with the result that much is omitted which is later found to be important, either in staff meeting or possibly even in the court room. The history and physical examination are important in the clinical record, but what is most important is the clinician's summary indicating his thinking in reaching his conclusion as to the disease process pres-

Abridgment of article in the Journal of the Maine Medical Association 30:247 (Oct.) 1939.

ent. Too frequently this is omitted in favor of a simple statement of the tentative diagnosis, making one wonder whether he might be afraid to indicate his method of arriving at the conclusion. Next most important is an accurate detailed description of the therapy used—medical, surgical, dietary or other—and the day to day record in the progress notes of the convalescence.

The hospital administration has the responsibility of building the staff library of current experience into something of value by making provision to index and file all records so that they are readily available for patients as a health record or for physicians as a study of illness. This requires the use of a nomenclature by both the hospital and the staff in order to index by disease classification. It also requires that the staff set forth the events in their hospital practice they may later want to study so that these can be indexed. Hospitals giving such attention to recording and indexing the experience of the staff are building a reference library of their own clinical material. Medical staffs using their clinical records as a basis for study are pooling their recorded experience. They are certainly teaching hospitals.

Frequently the discussion of medical records suggests to the staff a need for securing outside experience to add to their own. In such instances the staff will go to its medical library to obtain the benefit of the experience of others. A teaching hospital will therefore give considerable attention to the development of the hospital library, basing it on standard textbooks and developing it with current periodicals. But more than just buying books and periodicals is necessary to get the fullest use of the library. In one hospital the staff requests the library committee to report at each meeting on the material received in the current periodicals. With the presentation of each clinical record some report will be made of the experience of others as recorded in the current periodicals. In other hospitals there is an active journal club where each month a different phase of medical work is discussed on the basis of current and past literature. At this hospital fifteen minutes of each staff meeting is given over to the discussion of a case record reported and discussed in one of their weekly periodicals. This case record is typed off so that each staff member has a copy. In the course of the meeting each one sums up the case history in his own words and draws his conclusion. When all have entered their comments, the final diagnosis and the comments of the attending physician are presented as well as the results of necropsy if a death occurred. These hospitals are teaching hospitals. They are adding the proved experience of medical history to their own.

The hospitals under discussion will supply as complete a service in pathology as is possible under their circumstances. At a minimum such service should be available for the examination of all tissues removed at operation necropsy. A more complete service includes regular visits by the pathologist to the hospital, examination of all tissues removed, performance of necropsies and attendance at staff meetings. Staff members must plan to use such service as is available to its fullest extent. At one hospital only the minimum service can be provided. Here one of the local staff members is designated as laboratory supervisor with the responsibility for making the laboratory work more serviceable to the staff, for performing all necropsies and for interpreting all pathologic reports. This supervisor sends a full report of his gross examination of all tissues to the pathologist so that all factors may be considered in the pathologist's report of the microscopic examination. Another hospital has been able to arrange for the pathologist to attend staff meetings. There from ten to fifteen minutes of each staff meeting is given over to a clinical pathologic conference using the tissues removed during the month and any available necropsy material as the basis of discussion. The staffs of these hospitals have taken as their ideal the willingness of members to review their clinical judgment objectively with the assistance of the pathologist's report and to face their clinical results at the necropsy table. The hospitals are teaching hospitals.

Finally the teaching values of a hospital depend on the willingness of the staff members as a group to pool their individual experiences without reservation into a common fund of knowledge to set up standards as a guide for their day to day hospital practice, to record their experience in an indexed library of clinical records, to consult freely with one another regarding individual patients, to lose no opportunity to check accurately their diagnoses and treatments, to study their recorded experiences in a constant attempt to improve their methods.

DEPRECIATION IN HOSPITAL BUILDINGS

VICTOR R. LUNDY, N.A.I. and LOTTIE L. CRAWFORD, M.A.I.
SAN DIEGO, CALIF.

At the request of Mercy Hospital, San Diego, a survey was recently made of 1,000 hospitals accredited by the American Medical Association to ascertain the economic life of such an institutional building. Questionnaires were sent to all hospitals which were nonprofit and proprietary institutions in California with fifty beds or more and in other states with 100 beds or over. Only those hospitals which might be considered as operating on a competitive basis were included. Information was returned on 384 of these properties.

Results of this survey when tabulated showed that in the 20 years and under age group not only had a number of hospitals been demolished but 20 per cent of them had required new capital expenditures for modernization. In the 20 to 30 year age group 72 per cent were reported as either modernized or demolished. Considering all reporting hospitals it was indicated that, before reaching the age of 40 years, 60 per cent of them had been demolished or had undergone one or more extensive modernization programs.

This survey was limited, of course, and results are not conclusive; but they do appear to support the conclusion that the probability of any hospital enjoying, without the addition of large amounts of new capital, an economic life of much more than thirty-five years is extremely remote and that a depreciation factor of at least 3 per cent as advocated by some hospital authorities is none too great.

Complete tabulation of results of this survey are presented herewith.

Opportunities for the appraisal of hospital properties are comparatively rare and there is little to be found

in appraisal literature dealing with this subject, the extent of the discourse on hospitals being that they are service properties and as such are to be appraised on a cost less depreciation basis.

Hospitals in our opinion, however, have in numerous cases many of the attributes of investment properties. The plant and equipment, the personnel, the receipts and disbursements, and the problems of management in a hospital are often more intricate than in those of large and important commercial enterprises, and the necessity for most of them to earn a return commensurate with the capital investment which they represent is no less than it is in the case of hotels, apartments and similar enterprises, which have, as do hospitals, space and service for sale and the investment nature of which is recognized. To complicate the situation further, there is the matter of necessary free service or charity cases.

Economic obsolescence in appraisal practice is that phase of depreciation which has to do with loss of value due to adverse economic factors not inherent in the property but rather environing it. In hospitals there is a phase of economic obsolescence which occurs in few other types of property. A hospital is subject to peculiar economic hazards. It is a civic and social institution which, unless it cooperates freely in promoting community well being, is thought of as not performing the task for which it was intended and which public opinion insists that it shall perform. The result of this situation is that it is exceedingly difficult to operate a hospital on a strictly commercial basis and, to the extent that its efforts are devoted to charitable activity and free service, it becomes uneconomic and suffers loss of value accordingly, as it grows impossible for it to earn a legitimate return on the capital investment which it represents.

In all states, with the exception of California, New Mexico and Wyoming, this situation is recognized and an effort to compensate for it is made by the elimination of taxes wholly or in part. Where no such tax concession is made, there appears to be logic to the contention that, so far as charitable activity results in a loss of capital value, the inequality which thus arises should be adjusted by a proportionate reduction in valuation in tax purposes.

In any consideration of a hospital as an investment property, cognizance must be taken of the cost of the charitable or free contribution. If the institution were free to delegate this portion of its function to the state where it really belongs, it could devote this portion of its plant to income producing activities. As an illustration, let us say that one third of the plant of the entire hospital is devoted to charitable works. We must then consider that the property has suffered from economic obsolescence the loss of one third of its value.

Necessarily in any financial statement made for the purpose of obtaining financing, whether through a bond issue or a direct loan from a financial institution, this loss of value must be considered. If some public recognition could be obtained of this social demand to the extent that state or municipal aid was given, the financing of hospitals could be made much more simple.

Demolition and Modernization of Hospitals

	Years of Actual Age					
	1 to 20	21 to 30	31 to 40	41 to 50	51 and Over	Total All Ages
Age at which modernized						
1 to 20	25	54	24	10	4	117
21 to 30	..	6	25	11	7	49
31 to 40	..	..	7	10	6	23
41 to 50	..	..	..	3	2	5
51 and over	..	..	..	..	4	4
Total modernized	25	60	56	34	23	198
Number demolished	3	7	20	9	7	46
Modernization not indicated	98	25	2	5	10	140
Number in group	126	92	78	48	40	384
Percentage of total	32	25	20	13	10	100

These figures are the result of a questionnaire sent to 1,600 hospitals throughout the United States accredited by the American Medical Association and excluding all city, county, state and federal hospitals or those of fraternal or industrial organizations. Only those were considered for which the making of a profit might be an important consideration. Included were such hospitals in California of fifty or more beds and in other states of 100 or more. Information was returned on a total of 384 hospitals.

With the tendency toward a more general use of hospitals in minor ailments we can, in our opinion, expect an acceleration of obsolescence. Expenditures for modernization and upkeep will necessarily increase in order to arrest this tendency. Without a doubt many hospitals which have coasted along on their reputations will find it necessary to make major expenditures in order to maintain their incomes and compete with more modern institutions.

923 Seventh Avenue.

GRADUATE MEDICAL EDUCATION

PROGRESS REPORT OF THE FIELD STUDY ON GRADUATE MEDICAL EDUCATION IN THE UNITED STATES BEING CONDUCTED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

VERMONT

At the 1938 annual meeting of the Vermont State Medical Society the secretary, Dr. B. F. Cook, suggested more active cooperation between the Vermont Department of Public Health, the Medical College of the University of Vermont and the state medical society. In the secretary's report for 1939 it was stated that such cooperation had been secured and had resulted in benefit to the public and to the profession.

For the past five years the state medical society has held two day spring clinical meetings in Burlington with the active participation of the medical college. Lectures, demonstrations and clinics are given in the hospital and other buildings of the college. General and special aspects of medicine and surgery are considered, the sessions beginning at 9:30 each morning with small group demonstrations and continuing through the evening. Attendance has averaged about 225.

Each fall there is a two day regular meeting of the state society. During the past two years this has been held in Burlington. In addition to lectures the 1939 meeting included a symposium on obstetrics in which six Vermont and out of state physicians participated; the annual attendance has averaged 200. Of the 501 licensed physicians in the state, 392 are members of the Vermont State Medical Society.

The Commonwealth Fund of New York has provided physicians practicing in the rural sections of Vermont with fellowships which permit graduate study in medical centers outside the state. Fourteen men practicing in thirteen different areas spent from one to three months in continuation study during the past year. All but four of these physicians had availed themselves of this opportunity on previous occasions. The conditions of fellowship followed the same general pattern as in Maine and New Hampshire. The secretary of the state medical society accepts applications for the Commonwealth Fund.

In 1938 the state medical society aided in the establishment of a library in connection with the medical library of the university at Burlington. Ample quarters and supervision have been provided for periodicals and books donated or purchased by members of the society. An annual allotment of $150 has been made to develop this library.

During the same year the state society cooperated with the state department of public health in launching a statewide program for the control of pneumonia. For this purpose the state society lent $1,000 to the department of public health to aid in the maintenance of a fund for the purchase of serum. This loan has been repaid and the program has been generally considered successful.

Beginning in 1936 the Division of Maternal and Child Welfare of the Vermont Department of Public Health held itinerant lectures and demonstrations in six county medical societies. Three hour programs in each subject were available at monthly intervals for three times. Movies were utilized whenever possible. During 1936-1937 three programs were given in each county society. In 1937-1938 the subjects were varied and, from the list of twenty-four topics submitted, many related to general medicine and surgery; county societies could make their own selections. Teams of two or more speakers were furnished for these discussions. The same plan was followed in 1938-1939. In addition there was a symposium on medicine and dentistry in which two physicians and two dentists participated. This full day program was given in four sections of the state. Other symposiums, on ovarian pathology, on infections of the upper respiratory tract and on obstetric and general anesthesia, have been given with both Vermont and out of state physicians participating.

During 1938-1939 a total of ten obstetric lectures and twelve pediatric lectures were held in ten places with an attendance of approximately 200 physicians. This was an increase over 1937-1938. The obstetric lectures were given in eight communities and pediatrics in seven, with a total attendance of 128.

OFFICIAL NOTES

THE NEW YORK SESSION

Meeting Places

Meeting places for the House of Delegates, the General Scientific Meetings, the Sections of the Scientific Assembly and the Scientific and Technical Exhibits at the annual session of the American Medical Association to be held in New York June 10 to 14, 1940, will be as follows:

HOUSE OF DELEGATES: The Waldorf-Astoria, Basildon and Jade rooms.

GENERAL SCIENTIFIC MEETINGS: The Waldorf-Astoria, Ballroom, and the Commodore, Grand Ballroom.

REGISTRATION AND SCIENTIFIC AND TECHNICAL EXHIBITS: Grand Central Palace.

SYMPOSIUM ON HEALTH EDUCATION: Hotel Roosevelt, Grand Ballroom.

SECTIONS OF THE SCIENTIFIC ASSEMBLY

PRACTICE OF MEDICINE: The Waldorf-Astoria, Ballroom.

SURGERY, GENERAL AND ABDOMINAL: The Commodore, Grand Ballroom.

OBSTETRICS AND GYNECOLOGY: The Commodore, Grand Ballroom.

OPHTHALMOLOGY: Hotel Roosevelt, Grand Ballroom.

LARYNGOLOGY, OTOLOGY AND RHINOLOGY: Hotel Roosevelt, Grand Ballroom.

PEDIATRICS: The Waldorf-Astoria, Ballroom.

PHARMACOLOGY AND THERAPEUTICS: The Biltmore, Music Room.

PATHOLOGY AND PHYSIOLOGY: The Biltmore, Music Room.

NERVOUS AND MENTAL DISEASES: The Biltmore, Ballroom.

DERMATOLOGY AND SYPHILOLOGY: The Commodore, West Ballroom.

PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH: Hotel Roosevelt, Hendrik Hudson Room.

UROLOGY: The Commodore, West Ballroom.

ORTHOPEDIC SURGERY: The Biltmore, Ballroom.

GASTRO-ENTEROLOGY AND PROCTOLOGY: Hotel Roosevelt, Hendrik Hudson Room.

RADIOLOGY: The Commodore, East Ballroom.

MISCELLANEOUS TOPICS, SESSION ON ANESTHESIA: The Commodore, East Ballroom.

ADDITIONAL SPEAKERS AT ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Supplementing the preliminary program printed in THE JOURNAL December 9, the following speakers will participate in the Annual Congress on Medical Education and Licensure to be held in Chicago Feb. 12 and 13, 1940:

Presidential Address.
Roy B. Harrison, M.D., President, Federation of State Medical Boards of the United States, New Orleans.

Opportunities for a Medical Career in the Federal Civil Service.
A. Ray Dawson, M.D., Senior Medical Officer, Examining Division, United States Civil Service Commission, Washington, D. C.

(Subject to Be Announced.)
Ross T. McIntire, M.D., Rear Admiral, Medical Corps, and Surgeon General, United States Navy, Washington, D. C.

Inter-American Relations in Medical Education and Licensure.
Walter L. Bierring, M.D., Secretary-Treasurer, Federation of State Medical Boards of the United States, Des Moines, Iowa.

Relationship Between Advertising and the Practice of Medicine.
K. E. Miller, M.D., Senior Surgeon, United States Public Health Service, Federal Trade Commission, Washington, D. C.

Advisory Council on Medical Education as Related to Licensure.
Willard C. Rappleye, M.D., Dean, Columbia University College of Physicians and Surgeons, New York.

The Philosophic Trend of Medical Practice Laws.
H. M. Platter, M.D., Secretary, Ohio State Medical Board, Columbus.

The Advantages of a Single State Board of Medical Examiners.
J. N. Baker, Secretary, Alabama State Board of Medical Examiners, Montgomery.

CORRECTION

Program for Instruction of Interns.—In the program for the Annual Congress on Medical Education and Hospitals (THE JOURNAL, December 9, p. 2157) one of the speakers on the subject "Program for Instruction of Interns" was printed as Nathan Davis, M.D., New York. This name should have been Nathan Smith, M.D., New York.

WOMAN'S AUXILIARY

New Jersey

The board of directors of the auxiliary to the Medical Society of New Jersey met in Camden October 29. Speakers were Mrs. Rollo K. Packard, president of the auxiliary to the American Medical Association, and Dr. LeRoy A. Wilkes, executive officer, *Journal of the Medical Society of New Jersey.*

The auxiliary to the Atlantic County Medical Society met in Atlantic City October 13. Speakers were Mrs. McDonnel, president, and Mrs. J. H. Hornberger, corresponding secretary of the auxiliary to the Medical Society of New Jersey, and Mr. Frank G. Farley, assemblyman from Atlantic County in the New Jersey legislature. Mr. Farley spoke on constructive legislation.

South Dakota

The board of directors of the auxiliary to the South Dakota State Medical Association met in Huron October 3. The president, Mrs. A. E. Johnson, suggested that members study the works of prominent members of the medical profession. The special work of the auxiliary is its benevolent fund.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Annual Art Exhibit.—The Los Angeles Physicians' Art Society will hold its second annual exhibit in the lounge of the Los Angeles County Medical Association January 8-31. All members of the county medical association are invited to submit art work for this exhibit. There will be five classes of art for exhibition: modeling and sculpture (including woodcarving), painting, drawing, photography and handicraft. Additional information may be obtained from either Dr. Katherine Close, secretary, or Dr. Harold L. Thompson, president.

Annual Surgical Meeting.—The Los Angeles Surgical Society held its annual meeting December 13. The following program was presented:

Dr. James A. Jackson, Madison, Wis., Open Reduction Treatment of Fractures.
Dr. Albert H. Montgomery, Chicago, Abdominal Tumors in Childhood.
Dr. Earl C. Padgett, Kansas City, Mo., Superficial and Deep Intermediate Skin Grafts as Cut with the Dermatome.
Dr. Kellogg Speed, Chicago, Pitfalls in Bone Tumor Diagnosis and Prognosis.
Dr. Rollin Russell Best, Omaha, The Biliary Flush as an Aid in the Management of Biliary Tract Disease.
Dr. Willis D. Gatch, Indianapolis, Surgical Treatment of Acute Lesions of the Upper Abdomen.
Dr. Raymond W. McNealy, Chicago, Perforation in Peptic Ulcer: A Critical Review of 700 Cases.
Dr. Charles W. Mayo, Rochester, Minn., Combined Abdominoperineal Resection for Malignancy of the Lower Bowel.

COLORADO

New Officers of Hospital Association.—Mr. Frank J. Walter, Denver, was chosen president-elect of the Colorado Hospital Association at its annual meeting November 15 and Mr. R. J. Brown, Denver, was installed as president. Dr. Bertram B. Jaffa, Denver, is executive secretary. It was decided to hold the 1940 meeting in Denver November 13. Among the speakers was Dr. Bert W. Caldwell, Chicago, executive secretary, American Hospital Association, who discussed "Nongovernment Hospitals and the Federal Health Program."

Society News.—At a meeting of the Arapahoe County Medical Society November 27 Drs. Osgoode S. Philpott and Isadore Gersch of Denver discussed syphilis and gonorrhea respectively.——The Fremont County Medical Society was addressed in Florence November 27 by Drs. Kon Wyatt, Canon City, on "Functional Disorders of the Colon" and Elwood B. Lynch, Canon City, "Practical Points on Diagnosis and Treatment of Diseases of the Liver."——Dr. Roland M. Klemme, St. Louis, addressed the Colorado Neurological Society in Denver December 16 on "Surgical Treatment of Paralysis Agitans, Athetosis and Dystonia."

CONNECTICUT

Hartford Times Radio Blood Donors League.—The Hartford *Times* Radio Blood Donors League has recently been established through the cooperation of the newspaper and its radio division WTHT. The league aims to secure a group of volunteers who are willing to give their blood for a transfusion without any monetary compensation. It is designed for use only in the four public hospitals in Hartford and is an emergency service intended solely for patients who are positively unable to secure a necessary transfusion in any other way. It is not available to persons able to pay or who have friends or relatives who can supply the transfusions. No call requesting a donor of a transfusion will be accepted except from a hospital or attending physician. Twenty-four hour service is provided. The four hospitals and the Hartford County Medical Association are cooperating in typing the volunteers. Of the 150 volunteers recorded November 21 sixty had been typed and donors for fifteen transfusions had already been supplied. Members of the committee in charge of the league are Ward Duffy, managing editor of the Hartford *Times;* Bob Martineau, program director of WTHT; Police Chief Butler of the Hartford police department, and Drs. Louis P. Hastings, Perry T. Hough, Abraham M. Schaefer and Ralph E. Kendall, chief pathologists at the St. Francis, Municipal, Mount Sinai and Hartford hospitals, respectively, and Dr. Harry L. F. Locke, chairman of the medical information bureau of the Hartford Medical Society and the Hartford County Medical Association.

ILLINOIS

Society News.—Dr. Edward L. Compere, Chicago, was reelected president of the Illinois Association for the Crippled at its recent meeting in Chicago.——The Champaign County Medical Society was addressed November 9 by Dr. Roland M. Klemme, St. Louis, on "Surgical Treatment of Parkinson's Disease."——Dr. Joseph L. Baer, Chicago, addressed the Lake County Medical Society December 5 on "Prevention of Maternal Mortality."——Dr. Otto H. Schwarz, St. Louis, discussed "Use of X-Ray in Obstetrics" before the Sangamon County Medical Society, Springfield, December 7.

State Health Conference.—The annual state conference on public health was held in Springfield December 7-8. Among the speakers were:

Clair Turner, Dr.P.H., Cambridge, Mass., Educating the Public for Health.
Dr. Esmond R. Long, Philadelphia, The Tuberculin Test.
Dr. Theodore R. Meyer, Clayton, Mo., A Practical Program in Sanitation.
Dr. Harry S. Gradle, Chicago, Sight Conservation.
Dr. Franklin G. Ebaugh, Denver, Mental Hygiene in Public Health.
Dr. Warren F. Draper, Washington, D. C., The Federal Health Program.
Dr. Fred Moore, Des Moines, Iowa, School Health Programs.
Dr. Everett D. Plass, Iowa City, A Rural and Small Town Maternity Hygiene Program.
Reuben L. Kahn, Sc.D., Ann Arbor, Mich., Serology in Syphilis.

A symposium on laws requiring diagnostic tests featured the luncheon for health officers with the following speakers: Dr. Kahn, Howard J. Shaughnessy, Ph.D., chief of the division of laboratories, state department of health, and Dr. Edward A. Piszczek, of the Chicago department of health.

Chicago

Dr. Pusey to Lecture on History of Chicago Medicine.—Dr. William Allen Pusey will deliver a public lecture in the auditorium of the Museum of Science and Industry, west pavilion, Jackson Park, January 9, on "High Lights in the History of Chicago Medicine." The lecture is sponsored by the Institute of Medicine of Chicago in conjunction with the Chicago Historical Society and the Society of Medical History of Chicago.

Branch Meetings.—At a meeting of the Evanston Branch of the Chicago Medical Society November 3 Dr. James Murray Kinsman, Louisville, Ky., discussed "Present Status of Sulfapyridine." Dr. James C. White, Boston, addressed the North Side Branch November 2 on "Neurological Treatment of Visceral Pain." At a meeting of the Englewood Branch November 7 Dr. Arthur Steindler, Iowa City, discussed "Fracture Malunion of the Ankle Joint." Dr. Anton J. Carlson discussed "Black Oxen and Toggenburg Goats" before a meeting of the Aux Plaines Branch December 15. A symposium on pneumonia was presented before the Calumet Branch December 15 by Drs. Paul S. Rhoads, Evanston, Ill., and Ford K. Hick. Drs. Harry M. Hedge and Samuel J. Zakon, among others, addressed the Douglas Park Branch December 19 on "Diagnosis and Treatment of Naevi" and "The Management of Some Common Skin Diseases."

IOWA

University News.—Dr. Hale F. Shirley, assistant professor of psychiatry, State University of Iowa College of Medicine, Iowa City, has resigned to become assistant professor of psychiatry and pediatrics at Stanford University School of Medicine and director of the Child Guidance Clinic, San Francisco. Dr. Shirley graduated at Iowa in 1927.

Society News.—Dr. William Wayne Babcock, Philadelphia, discussed peritonitis before the Black Hawk County Medical Society in Waterloo October 23.——At a meeting of the Boone and Story county medical societies in Ames October 24 Dr. Horton C. Hinshaw, Rochester, Minn., spoke on "Pneumonia and Upper Respiratory Infections."——The Crawford County Medical Society was host to the dentists of the county and the wives of both groups at a dinner meeting recently; Dr. Harry N. Boyne, Omaha, spoke on "The Care of Facial Injuries."——Dr. Lester R. Dragstedt, Chicago, discussed "Etiology and Surgical Treatment of Gastroduodenal Ulcers" before the Dallas and Guthrie county medical societies at a meeting in Guthrie Center, October 25.——The quarterly conference of the Lee County Medical Society was addressed in Keokuk October 20 by the following, all of

Chicago: Drs. John I. Brewer, on "Uterine Bleeding"; Grant H. Laing, "Clinical Importance of Pylorospasm"; George W. Hall, "Newer Treatment of Mental and Nervous Diseases," and Fremont A. Chandler, "Low Back Pain."——At the sixty-fourth annual meeting of the Southeastern Iowa District Medical Society in Washington October 26 the speakers included Dr. George D. Jenkins, Burlington, on "The Newer Concepts in the Treatment of Gonorrhea."

MASSACHUSETTS

Dr. Castle Awarded Walter Reed Medal.—Dr. William B. Castle, professor of medicine, Harvard Medical School, Boston, was awarded the Walter Reed Medal November 21 at a meeting of the American Society of Tropical Medicine in Memphis, Tenn. The award was made for his "meritorious achievements in the field of tropical medicine, his outstanding leadership and scientific investigations which have resulted in most important additions to our knowledge of sprue and related anemias," newspapers reported. Dr. Richard P. Strong, Boston, presented the medal. It was the first award in four years. It is given only in years when there has been particularly outstanding work. Dr. Castle, a graduate of Harvard, has been a member of its teaching staff since 1923 and professor since 1937.

Committee to Develop Research in Pharmacotherapy.—A committee on pharmacotherapy has been established at Harvard University to develop research and improve graduate training in the field of pharmacology and experimental therapeutics, coordinating the efforts of practicing physicians and Harvard scientists in biology, chemistry and medicine. Funds to support the work of the committee for the next five years have been donated by a group of corporations interested in medical and therapeutic research. Dr. Soma Weiss, Hersey professor of the theory and practice of physic at Harvard, is chairman of the committee. Other members are Dr. Fuller Albright, assistant professor of medicine; Dr. Henry K. Beecher, associate in anesthesia; Dr. Sidney Burwell, dean of the medical school, ex officio; Dr. Walter B. Cannon, George Higginson professor of physiology; Dr. William B. Castle, professor of medicine; James B. Conant, LL.D., president of the university, ex officio; Louis F. Fieser, Ph.D., professor of chemistry; A. Baird Hastings, Ph.D., Hamilton Kuhn professor of biological chemistry; Frederick L. Hisaw, Ph.D., professor of zoology; Dr. Otto Krayer, associate professor of comparative pharmacology, and Reginald P. Linstead, professor of chemistry. It is hoped that through the work of the committee pharmacology and experimental therapeutics will be more effectively cultivated and that an opportunity will be afforded for a new and improved graduate training in the field of pharmacology and experimental therapeutics.

MICHIGAN

Personal.—Dr. James W. Hubly, recently first assistant in the department of surgery at the Mayo Clinic, Rochester, Minn., has been appointed head of the department of surgery at the Battle Creek Sanitarium, Battle Creek. Dr. Martin A. Mortensen, who for several years was a member of the staff in internal medicine, has returned to the sanitarium, it was announced recently by the newly appointed administrator, Dr. John E. Gorrell.

State Society Night.—The Wayne County Medical Society, Detroit, designated its meeting December 4 as "state society night." Included among the speakers following a dinner in their honor were:

Dr. Burten R. Corbus, Grand Rapids, president of the state society, The Function of the State Medical Society.
Dr. Henry A. Luce, Detroit, delegate to the American Medical Association, National Medical Activities.
Drs. Henry R. Carstens and Andrew S. Brunk, both of Detroit, chairman and vice chairman of the council, respectively, and Dr. L. Fernald Foster, Bay City, secretary, Michigan Medical Service.
William J. Burns, executive secretary, Medical Welfare.

Society News.—Dr. Carl E. Badgley, Ann Arbor, discussed "Bone Surgery" before the Muskegon County Medical Society in Muskegon November 17.——Dr. Traian Leucutia, Detroit, discussed "X-Ray Therapy of Cancer" before the Oakland County Medical Society November 1 in Birmingham.——At the second meeting of the Michigan Society of Neurology and Psychiatry November 30 in Dearborn the speakers were Drs. Hawley S. Sanford, Detroit, on "Epileptic Phenomena Associated with Tumors of the Temporal Lobe," and Russell T. Costello, Detroit, "Migraine and Trigeminal Neuralgia Occurring in a Neuropathic Family."

MISSOURI

Dr. Baumgarten Named Editor of State Journal.—Dr. Walter Baumgarten, St. Louis, has been elected editor of *The Journal of the Missouri State Medical Association* to succeed Dr. Edward J. Goodwin, who retired last year and was elected secretary-editor emeritus. Dr. Baumgarten graduated at Washington University School of Medicine, St. Louis, in 1896.

Dr. Doisy Receives Annual Award.—Edward A. Doisy, Ph.D., professor and director of the department of biological chemistry, St. Louis University School of Medicine, St. Louis, recently received the seventh annual St. Louis Award at a public ceremony in the mayor's office, according to *Science*. The award, $1,000 and a certificate, is the gift of an anonymous donor. Graduating at the University of Illinois in 1914, Dr. Doisy took his doctor's degree in 1920 at Harvard University. He served on the staffs of the medical schools of Harvard and Washington University before joining St. Louis University in 1923.

NEW YORK

District Meeting.—Two symposiums made up the program of the annual meeting of the Second District Branch of the Medical Society of the State of New York in Garden City November 16. Dr. Henry M. Moses, Brooklyn, presided at a morning session on neoplasms of the chest with the following speakers: Drs. Matthew G. Golden, Brooklyn; Irving S. Startz, Elmhurst; Carl H. Greene, New York; Raphael A. Bendove, New York; Alfred Angrist, Jamaica, and William H. Field, Brooklyn. Tuberculosis was the afternoon topic, with Dr. Charles E. Hamilton, Brooklyn, as chairman and the following speakers: Drs. Foster Murray, Abraham H. Levy, Edwin J. Grace, Peter Amazon, Brooklyn, James C. Walsh, Farmingdale, and Carl A. Hettesheimer, Hempstead.

New York City

Doctors' Orchestra Opens Concert Season.—The Doctors Orchestral Society of New York gave its first concert of the season December 8 at the New York Philanthropic League Hall. The program included the Bach Brandenburg Concerto in G major No. 3; a Mozart quintet in A major; the andante cantabile from Tschaikowsky's String Quartet No. 11; compositions for violin and piano by Eda Rapoport, wife of a physician, and a group of solos by Miss Marcella Uhl. Ignatz Waghalter is conductor of the orchestra.

Memorial Meeting for Dr. Park.—Civic, educational and medical leaders held a memorial meeting November 28 in honor of the late Dr. William H. Park. Speakers included Mayor La Guardia; Harry Woodburn Chase, chancellor of New York University; Dr. Malcolm Goodridge, president of the New York Academy of Medicine; Dr. Anna W. Williams, former assistant director of the city health department's bacteriology laboratory under Dr. Park, and Dr. Augustus B. Wadsworth, director of laboratories and research, state department of health, Albany.

Dr. Bassler Honored.—The November-December issue of the *Review of Gastroenterology* was dedicated to Dr. Anthony Bassler in honor of his sixty-fifth birthday. Dr. Bassler, a native of New York, graduated in the last class from Bellevue Hospital Medical College before its merger with the New York University Medical College in 1898. He was successively lecturer in pediatrics, pathology and internal medicine at the new school from 1900 to 1910; clinical professor of physical diagnosis at New York Polyclinic Medical School and Hospital, 1911-1914, and professor of gastro-enterology 1915 to 1925; professor of gastro-enterology at Fordham University Medical College, 1915-1920. For the past four years Dr. Bassler has been president of the National Gastroenterological Association. He is consulting gastro-enterologist to several hospitals in New York and surrounding towns. He is the author of four books in his specialty and has contributed much to periodic literature.

Society News.—Speakers at a meeting of the New York chapter of the National Gastroenterological Association November 20 were Drs. William A. Steel, Philadelphia, on "Cholecystogastrostomy and Duodenostomy"; William A. Swalm and Lester Morrison, Philadelphia, "A New Liver Function Test."——Drs. Isidor C. Rubin and Bruce P. Webster addressed the New York Endocrinological Society November 22 on "Endocrine Therapy in Sterility: A Critical Review" and "Disturbances of Normal Mechanism of Puberty and Their Management" respectively.——Dr. Roderick V. Grace addressed the New York Surgical Society November 22 on "Surgery of

the Thyroid."——Drs. Henry Graham and Charles D. Sawyer addressed the New York Surgical Society November 8 on "Peritoneoscopy." —— Drs. Max Pinner and Edgar Mayer addressed the Bronx County Medical Society November 15 on "Epidemiology and Pathogenesis of Pulmonary Tuberculosis" and "Diagnosis and Treatment of Pulmonary Tuberculosis" respectively.——Dr. Philip Sacks addressed the Bronx Otolaryngological Society November 28 on "Pneumococcic Meningitis, a Review of the Literature and Report of a Type XVIII Recovery of Otitic Origin."——The Tuberculosis Sanatorium Conference of Metropolitan New York, which also includes Long Island, New Jersey and part of Connecticut, has formed a nursing and social service section.

NORTH CAROLINA

New Industrial Hygiene Director.—Dr. Thomas F. Vestal, Worcester, Mass., has been appointed medical director of the division of industrial hygiene in the state board of health. He succeeds Dr. Herman F. Easom, who recently resigned. Dr. Vestal is a native of North Carolina and a graduate of the University of Maryland School of Medicine.

District Meetings.—The Eighth District Medical Society held its annual meeting in High Point November 2, with Dr. William Halsey Barker, Baltimore, as the guest speaker on "Sulfanilamide, Sulfapyridine and Allied Compounds." A symposium on treatment of diabetes was presented by Drs. Opie Norris Smith, Greensboro; William H. Sprunt Jr., Winston-Salem; Roy C. Mitchell, Mount Airy, and Thomas D. Tyson Jr., High Point.——Speakers at a meeting of the Second District Medical Society in Washington October 31 were Drs. William M. Nicholson, Durham, on "Treatment of Diabetes with Modified and Unmodified Insulin"; August R. Peters Jr., Washington, "Sulfapyridine in the Treatment of Pneumonia," and Mr. H. S. Ward, attorney, "The Doctor in Court."—— Dr. Eugene P. Pendergrass, Philadelphia, addressed the semi-annual meeting of the Tenth District Medical Society in Marion November 10 on cancer of the breast.

OHIO

Hospital Celebrates Golden Jubilee.—The Christ Hospital, Cincinnati, marked its golden jubilee with a dinner December 1 at which the principal feature was the presentation to the hospital of portraits of Drs. John C. Oliver and Edwin W. Mitchell. Dr. Oliver is the only living member of the original staff of the hospital and Dr. Mitchell has been a member since 1914.

Dr. Freiberg Honored.—The president of the University of Cincinnati and the faculty of the College of Medicine sponsored a dinner December 6 at the Netherland Plaza Hotel in honor of Dr. Albert H. Freiberg, recently retired professor of orthopedic surgery. Dr. Martin H. Fischer was toastmaster and the speakers were Raymond Walters, LL.D., president of the university; Drs. Stanley E. Dorst, Mont R. Reid and David I. Wolfstein, and the Rev. Jesse Halsey, pastor of the Seventh Presbyterian Church. A portrait of Dr. Freiberg was presented to him.

Society News.—Dr. Winchell M. Craig, Rochester, Minn., addressed the Warren County Medical Society, Franklin, November 22 on "Surgical Treatment of Hypertension."—— Dr. Arthur Carlton Ernstene, Cleveland, addressed the Ashtabula County Medical Society, Conneaut, recently on "Common Errors in Cardiac Diagnosis."——Dr. Deane H. Northrup, Marietta, addressed the Washington County Medical Association, Marietta, on "Burns and Their Treatment"; Drs. George F. Swan, Cambridge, "Medical Organization in Relation to Public Needs," and William L. Denny, Cambridge, new state laws on relief.——Dr. Martin H. Fischer, Cincinnati, addressed the Butler County Medical Society, Hamilton, November 29 on arteriosclerosis.——Dr. Emil Novak, Baltimore, addressed the Academy of Medicine of Cincinnati December 19 on "The Endocrine Influence of Certain Ovarian Tumors." Dr. Maxwell Finland, Boston, spoke December 5 on "Serotherapy and Chemotherapy of Pneumonia."

OREGON

Personal.—Dr. Edward J. Dehne, formerly of Astoria, has been appointed health officer of Coos County to succeed Dr. Leslie S. Porter, Eugene, who resigned to join the University of Oregon health service.

Society News.—Drs. Robin M. Overstreet and Willis B. Shepard, Eugene, addressed the Lane County Medical Society, Eugene, October 23, on "Abdominal Symptoms in Childhood" and "Motor Anomalies of the Eye" respectively.——Dr. Roger Anderson, Seattle, addressed the Polk-Yamhill-Marion Counties Medical Society, Salem, recently on "Fractures of the Clavicle and Injuries in the Region of the Shoulder Joint" and "Leg Fractures." Dr. Donald R. Laird, Portland, addressed the society November 7 on "Proctologic Problems of General Interest."

PENNSYLVANIA

Society News.—Drs. William J. Logue, Creed C. Glass, Meyersdale, and Alexander Solosko, Salisbury, presented a symposium on "Subacute Bacterial Endocarditis" before the Bedford County Medical Society, Bedford, November 28.—— Dr. Harry D. Lees, Philadelphia, addressed the Delaware County Medical Society, Chester, December 14 on "Pennsylvania's Tuberculosis Problem." —— Dr. Abraham Cantarow, Philadelphia, addressed the Harrisburg Academy of Medicine December 19 on "Effective Use of the Clinical Laboratory." ——Dr. Joseph B. DeLee, Chicago, addressed the Lycoming County Medical Society, Williamsport, December 8 on eclampsia.

Philadelphia

Dr. Morgan Honored.—Alumni of the former Medico-Chirurgical College of Philadelphia made of their annual reunion dinner in November a celebration of the seventieth birthday of Dr. Arthur C. Morgan, long active in the affairs of the alumni association. Dr. Morgan received a testimonial volume signed by every living alumnus of the school, from which he graduated in 1897. The year following his graduation he became a member of the faculty and served until the school was taken over in 1916 by the University of Pennsylvania to be developed as a graduate school. In the new school he was associate professor of medicine from 1916 to 1922 and for several years was associate in medicine in the undergraduate department of the university. In 1922 he went to Temple University School of Medicine as professor of applied therapeutics, remaining in that chair till 1928. He has been emeritus professor of clinical medicine since 1930. Dr. Morgan has been active in medical organizations, as president of the Philadelphia County Medical Society, as president of the Medical Society of the State of Pennsylvania, and as member of the House of Delegates of the American Medical Association. His hospital affiliations have included the Frankford Hospital, of which he was physician in chief and medical director for eight years, and the Medico-Chirurgical, Polyclinic, Samaritan and Garretson hospitals, where he has been at various times visiting physician. He was also a member of the Pennsylvania State Board of Medical Examiners for several years.

VIRGINIA

Regional Meeting.—The Southside Virginia Medical Association held its quarterly session in Petersburg December 12 with the following speakers, all of Richmond, on the program:

Drs. James W. Whitfield Jr. and Herman W. Farber, Care of the Skin in a Newborn Child.
Dr. Harry Hudnall Ware Jr., Management of Placenta Praevia.
Dr. Douglas G. Chapman, The Heart Beat Mechanism in Health and Disease.
Dr. Oscar L. Hite, Complications Resulting from the Use of Sulfapyridine.
Dr. Thomas F. Wheeldon, Use of the Smith-Petersen Nail in Fractures of the Neck of the Femur.

This society is made up of fifteen counties and the cities of Norfolk, Suffolk, Petersburg and Hopewell.

WEST VIRGINIA

Cancer Institute in Martinsburg.—The Eastern Panhandle Medical Society sponsored a cancer institute for the Eastern West Virginia division of the Women's Field Army of the American Society for the Control of Cancer December 13 in Martinsburg. Drs. Leopold Clarence Cohn, Baltimore, conducted a clinic and Dr. William Neill Jr., Baltimore, made an address on "Facts of Interest to Women Concerning Cancer." The visiting physicians also addressed the society at its regular luncheon meeting.

Society News.—Dr. Frank H. Lahey, Boston, addressed the Ohio County Medical Society, Wheeling, December 1, on "Various Thyroid States, Their Diagnosis and Management." ——Dr. Mont R. Reid, Cincinnati, addressed the Kanawha Medical Society, Charleston, November 14 on "Healing of Wounds." —— Dr. Hugh W. MacMillan, Cincinnati, also a dentist, addressed the Logan County Medical Society, Logan, November 8 on "Medical and Dental Conditions of the Head

and Neck."——Drs. Albert H. Hoge and Marshall W. Sinclair, Bluefield, addressed the Mercer County Medical Society, Princeton, November 16 on "Fads and Fallacies of Endocrinotherapy" and "Breast Tumors" respectively.

WISCONSIN

State Society Moves.—The State Medical Society of Wisconsin has moved its offices to 917 Tenney Building, Madison. Future correspondence should be sent to that address.

Lippitt Memorial Lecture.—The fifth annual Lippitt Memorial Lecture at Marquette University School of Medicine will be delivered January 19 by Dr. Harry Goldblatt, professor of experimental pathology and associate director of the Institute of Pathology, Western Reserve University School of Medicine, Cleveland. Dr. Goldblatt's subject will be "Experimental Observations on the Pathogenesis and Treatment of Hypertension."

Society News.—The Central Wisconsin Society of Ophthalmology and Otolaryngology held its fall meeting in Wausau October 28-29. Dr. Henry L. Williams, Rochester, Minn., presented papers on "Results of Endonasal Window Operation for Maxillary Sinusitis" and "Surgery of Chronic Pansinusitis," and Dr. Charles W. Rucker, Rochester, on "Perimetry and the Visual Pathway" and "Treatment of Toxic Amblyopia."——Dr. Archibald H. Beard, Minneapolis, addressed the Barron-Washburn-Sawyer-Burnett Counties Medical Society, Barron, November 7, on "Some Recent Theories on Diabetes, Including Therapy" and a motion picture on "Intracranial Injuries of the Newborn" by Dr. Pascal Brooke Bland, Philadelphia, was shown.——Dr. Albert G. Schutte, Milwaukee, addressed the Brown-Kewaunee-Door Counties Medical Society, Green Bay, November 9, on "Diagnosis and Treatment of Common Rectal Conditions."——Drs. John T. F. Gallagher and Luther E. Holmgren, Madison, addressed the Chippewa County Medical Society, Chippewa Falls, November 7 on "Open Reduction of Fractures" and "Spinal Anesthesia in Surgery" respectively.——Dr. Walter C. Alvarez, Rochester, Minn., was the guest speaker before the Dane County Medical Society, Madison, November 14 on "What to Do for the Woman Who Is Always Complaining."

GENERAL

Special Society Election.—Dr. Spencer Braden, Cleveland, was elected president of the Academy of Neurosurgery at the annual meeting in New Orleans in October. Dr. Francis Murphey, Memphis, Tenn., was reelected secretary. The 1940 meeting will be in Cleveland.

Pediatric Awards.—The American Academy of Pediatrics at its annual meeting in Cincinnati November 17 presented the E. Mead Johnson awards of $500 each to Drs. Frederic A. Gibbs, Boston, and Dorothy H. Andersen, New York. Dr. Gibbs was honored for his contribution to the knowledge of epilepsy and Dr. Andersen for her research on pancreatic disorders.

Southern Medical Election.—Dr. Quitman U. Newell, St. Louis, was chosen president-elect of the Southern Medical Association at the annual meeting in Memphis, Tenn., November 21-25 and Dr. Arthur T. McCormack, Louisville, Ky., was installed as president. Drs. Wilson L. Williamson, Memphis, and Ernst W. Bertner, Houston, Texas, were elected vice presidents. Next year's meeting will be in Louisville in November.

Northwest Regional Conference Changes Name.—The Northwest Regional Conference will henceforth be known as the National Conference on Medical Service. The conference is not official nor political, is not connected with any other organization or committee and its deliberations result in no resolutions or motions. It is informal, has no dues, by-laws or formal organizational structure. The fourteenth annual session will be held at the Palmer House, Chicago, Sunday Feb. 11, 1940. All state medical societies are invited to send representatives. Dr. L. Fernald Foster, Bay City, Mich., is president of the national conference and Dr. Forrest L. Loveland, Topeka, Kan., secretary.

New Films on Syphilis.—The American Social Hygiene Association has produced a documentary sound film, "With These Weapons," to aid in the campaign against syphilis. It has been prepared for distribution to schools, colleges, state and local health departments, women's clubs, social hygiene societies, churches and other organizations. The film opens with scenes illustrating the work of Schaudinn, Wassermann, Ehrlich and present day scientists and progresses to the principles of diagnosis and treatment, depicting the disease in its relation to individual and public health. Another film, entitled "Three Counties Against Syphilis," was produced by the U. S. Public Health Service to show the work of the trailer clinics for control of syphilis in three counties in Georgia.

Inter-American Society of Microbiology.—At the close of the recent International Congress of Microbiology in New York an Inter-American Society of Microbiology was organized with Dr. A. Sordelli, Buenos Aires, as the first president and Dr. Francesc Duran-Reynals, New Haven, Conn., as executive secretary. Two major problems which the society hopes to solve by this cooperation are (1) to devise a means for better exchange of results of studies in Latin and North America and (2) to effect a more intimate affiliation between the workers of all countries in study of diseases common to all. The new society plans to approach the solution of these problems by establishing an official journal and by organizing a congress. It is proposed that the journal will make its pages available to contributors from both Latin America and North America, the necessary translation being done in the United States. The proposed congress will be in Rio de Janeiro three years hence. Dr. J. C. N. Penido, Rio de Janeiro, was chosen to organize a committee to prepare for it.

Patients with Cancer Treated with Neutron Rays.—Cancer patients are now being treated with neutron rays produced by the cyclotron at the University of California, it was announced at the annual meeting of the National Advisory Cancer Council December 4. It is hoped that the rays from the 225 ton medical cyclotron at the university may break down cancer cells and effect, at least temporarily, some definite remission, according to a statement from the U. S. Public Health Service. The new 60 inch cyclotron occupies its own laboratory on the Berkeley campus of the university. In a report, Ernest O. Lawrence, Ph.D., who developed the cyclotron, for which he was awarded the Nobel Prize this year, stated:

> The new installation has been steadily improved, and at the present time it is gratifying to report that it is performing even better than we had reason to expect. The outfit runs with complete steadiness and reliability when producing 100 micro-amperes of 16 million volt deuterons (or one micro-ampere of 32 million volt alpha particles), and under these conditions the output of neutron rays, gamma rays and radioactive substances is prodigious. The latter are being sent to many parts of the world for experimental purposes. Should it prove desirable, we will be able to arrange treatment ports to treat two or more patients simultaneously. These remarks likewise apply to gamma rays, for we have plenty of gamma radiation of the energy range above a million volts also available for therapy. We have found that the yield of radioactive substances has gone up according to expectations. For example, the yield of radioactive iodine at 16 million volts is twenty times greater than at eight million volts, and we can now manufacture enough of this material to use it for therapeutic purposes, should this prove desirable.

"Crude" Deaths in Large Cities.—The New York City Department of Health has published its annual comparison of vital statistics in twenty-four large cities of the United States for 1938. The cities have a total population of nearly 27,000,000. The general death rate was 10.6 per thousand of population and the infant mortality was 42 per thousand live births. The birth rate was 15.3. It is pointed out that the rates for the individual cities are "crude" rates and should not be used as indexes of the relative healthfulness of the cities. Detroit had the lowest general rate, 7.8, and San Francisco the lowest infant mortality rate, 29.6. Other cities with general death rates under 10 were Milwaukee 8.4; Los Angeles 9.3; Rochester, N. Y., 9.6; Chicago 9.7 and New York 9.8. New Orleans with 15.4 had the highest rate in the group and Denver was next with 14. In 1938 seventeen cities had infant mortality rates under 50 and nine of these had rates under 40. In 1929 only two of this number had rates under 50. Among the five cities with populations over a million, the rates for infant mortality were: New York 38.3; Chicago 33.7; Philadelphia 42.2; Detroit 41.4 and Los Angeles 56.8. In these large cities the puerperal mortality was reported to be: New York 3.5 per thousand live births; Chicago 2.7; Philadelphia 3.2; Detroit 3.8 and Los Angeles 3.2. The compilation also listed the deaths from several important causes. New Orleans had the highest typhoid rate, 5.5 per hundred thousand of population; the next highest was Jersey City with 1.2. New Orleans also had the highest tuberculosis death rate, with Washington, D. C., next; these rates were 95.2 and 82.8 respectively. Minneapolis had the lowest tuberculosis rate, 13.6. Denver had the highest diphtheria death rate, 4.5, while Boston and Newark, N. J., had the lowest, 0.2. The highest cancer rate was reported from Boston, 203.5, and the lowest from Toledo, Ohio, 76.7. Pneumonia was highest in New Orleans, 150.7, lowest in Detroit, 41.6. The highest automobile death rate was in Denver, 35.2, and the lowest in Milwaukee and Jersey City, 9.5.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 18, 1939.

Medical Students and the War

The recently passed law of conscription for military service affects medical students, as many of them belong to the age group called up. But exemption is granted in the case of occupations of national importance for war purposes. As the fighting services make a considerable demand on the medical profession, it is important that medical students should continue their studies and become qualified. The authorities have decided that a medical student who has passed the first professional examination and completed two terms of anatomy and physiology is a member of a "reserved occupation." He is expected to continue his studies and is not liable for military service or eligible for national service of other kinds. If the necessity for maintaining himself away from home, resulting from the transference of his medical school to another area, causes financial difficulty, no state assistance is available to him. He should consult the dean of his medical school. A student who has not passed the first professional examination and completed two terms of anatomy and physiology is at liberty to continue his medical studies unless and until he is called up for medical service, provided his medical school can continue to provide a vacancy for him in the changed conditions. In the event of his completing the stated period of anatomy and physiology before his age group is called up, he will cease to be liable for military service and will be treated as "reserved." No decision has yet been reached regarding the release from military service of medical students who have reached a stage of the curriculum at which they would ordinarily be regarded as "reserved" but who, because of their prewar commitments to the army, are now serving as combatant officers or in the ranks.

The "Oslo Breakfast" in England

A new method in the feeding of children was presented some seven years ago by an experiment in a school in Oslo. Instead of a hot meal of the usual type served at midday, the children were given a breakfast composed of foods selected primarily with the object of making good the deficiencies in the home diet. The deficiency of animal protein was made good by a piece of goat's milk cheese and a glass of milk, which also supplied minerals and vitamins. There was entire wheat bread to supply vitamin B and the mineral salts lacking in white bread. Protection against scurvy, a danger in northern countries where cheap fruit is available for only a short part of the year, was given by half an apple or orange, a lettuce or a raw carrot, depending on the prevailing prices. In addition there was a good sized pat of butter to add more vitamins A and D. When the child had eaten this meal it was allowed, if still hungry, to fill up with bread and margarine. The experiment was such a success that this meal was adopted in almost every school in Norway and is now being tried out in the other Scandanavian countries. Both the development and the health of children were found to be better than when the hot meal of meat and cooked vegetables was provided.

The "Oslo breakfast" has been introduced into England and found highly satisfactory, but it is given as a dinner instead of breakfast and is called "the health dinner." In his report to the London County Council, just published, the school medical officer, Sir Frederick Menzies, states that the children taking the Oslo meal showed a greater increase in height and weight than children receiving the traditional English hot midday dinner. There was also a striking improvement in complexions and complete disappearance of minor cutaneous troubles. Menzies finds no evidence of general food shortage among London children but some want of ingredients essential to health which are not easily obtained in the winter months.

Immunologic Problems of Diphtheria

At a meeting of the Section of Pathology of the Royal Academy of Medicine in Ireland the president, Dr. R. A. Q. O'Meara, delivered an address entitled "A Critical Consideration of Immunological Problems with Special Reference to Diphtheria." He contrasted the early results of Roux, Martin and Chaillon in Paris in 1894 with those of today. There was evidence that diphtheria in Paris was then associated with the gravis type of bacillus. The mortality in nonlaryngeal cases without antitoxin treatment was over 30 per cent. Antitoxin treatment brought the figure down to 12.4 per cent. In the Cork Street Fever Hospital, Dublin, the mortality in a comparable group of actively treated cases in 1936, 1937 and 1938 was respectively 17.4, 10.5 and 11 per cent. The dose in any case of the early experiment did not exceed 8,500 units and was probably not more than 5,000. Against this, doses of 120,000 units were given in severe cases today. The conclusion appeared to be that there had been no improvement in the treatment of the toxemia of diphtheria since the introduction of antitoxin and that, unit for unit, modern antitoxin was less potent than that originally employed. The principles guiding the development of antitoxin in the interval had been mainly directed toward purification so as to ensure the maximum number of units in the minimum volume, while the study of clinical efficiency had been relegated to a minor position. Diphtheria and other forms of prophylaxis were also suffering from the making of the avoidance of reaction the first criterion of an immunizing agent. The immunologist had been dazzled by the achievements of the chemist in isolating fractions of the organism which had antigenic properties and could be injected without causing reaction. But Pasteur and other pioneers appeared to show that in order to get solid immunity against the causal organism it was necessary to use something close to the whole organism and not a fraction of it. The modern tendency might lead to the abandonment of immunization as of no practical use.

In the discussion, Prof. J. W. Bigger said that serologists and immunologists showed a tendency to become too academic. Antitoxin had definitely reduced the mortality of both gravis and mitis infections, but the treatment had not improved to the extent that might have been expected. Dr. C. J. McSweeney said that the commercial antitoxin now used seemed to check the spread of membrane but had little if any effect on the undefined toxic factor which was responsible for the faucial edema. The hallmark of toxic diphtheria was "the bull neck." To combat this, reactions had to be faced. For a highly virulent organism something more potent than the existing antitoxin was required. Dr. A. R. Parsons thought it difficult to know how much antitoxin to give. Some years ago good results had been achieved by from 4,000 to 8,000 units, but today some workers said that doses should not exceed 100,000 units and were quite safe up to that. Was the present antitoxin not so good as that formerly used? Dr. J. McCann said that in the early days antitoxin was given subcutaneously with good results; now it was given intravenously or intramuscularly. Given in this way many units might be excreted from the blood and lost almost as soon as given. He suggested that antitoxin should be given subcutaneously as well as by the other routes.

In reply O'Meara said that his object had been to show that a problem existed, not to say that antitoxin should not be used in the treatment of diphtheria or that prophylactics should not be employed. In spite of many alleged improvements since the introduction of antitoxin, certain cases of severe diphtheria were not amenable to it. The existing prophylactics gave a high degree of immunity, but parents should not be told that the

child would certainly be protected. In immunology there had been too great a gap between laboratory and clinical work. It was important to use the whole organism and not isolated parts or products of it.

PARIS

(From Our Regular Correspondent)

Nov. 18, 1939.

Vitamin C and Work

A recent paper by A. R. Ratsimamanga is devoted to the part vitamin C plays in work. It is well known that the human system does not synthesize the ascorbic acid that is needed in nutrition. He believes in the existence of a close connection between the metabolism of the glucides and the presence of vitamin C and demonstrates this connection by precise methods of dosage and by dietary studies on animals. The role of this vitamin is important also in the formation of glycogenic reserves, which are reduced whenever the supply of vitamin C is diminished. In animals at work there is a progressive decline of resistance to fatigue in keeping with the vitamin C impairment. Mortality and morbidity are higher and weight curves lower. Changes in the chemical processes are brought about by an increase in lactic acid and a decrease in creatine phosphoric acid. Vitamin C deficiency causes adrenal modifications such as cortical hypertrophy and a considerable decrease of the lipids of the zona fasciculata. Vitamin C deficiency is indicated by signs of adrenal insufficiency. All the facts justify the conclusion that the normal constitution of the adrenal cortex requires a certain vitamin C concentration necessary for the formation of the adrenal hormone. The fact that this hormone ceases to function when a certain degree of deficiency has set in indicates that ascorbic acid is concerned in the action of this hormone.

The Place of Neurology in Medicine

P. M. Laignel-Lavastine was recently advanced to the professorship of the Clinique des maladies mentales et de l'encéphale in the Paris Faculty. Previously he held the chair of the history of medicine. Laignel-Lavastine delivered his inaugural lecture at the Asile Sainte Anne, in which he paid a tribute to Claude, whose successor he is. Claude, he said, demonstrated that in the majority of minor psychopathic conditions appropriate medication has its place. Hysteria has the power of dissociating certain functional activities, certain perceptions and representations and to fix them in such a fashion that they remain forgotten outside the consciousness, this functional trouble arousing no reaction in the patient. The hysterical person, like the schizophreniac, has lost his sense of reality. Claude took an interest in the reform of the instruction of psychiatry. Unfortunately, the diagnostic technic in psychiatry is often impaired by social or judicial prejudices and also by an exaggerated psychologic solicitude. However, psychoscopy, conducted by means of questions and answers, ought not to be underrated, because the reactional coefficient of the patient, his constitution, his temperament and his character determine the nature of his actions.

Thoracic Wounds

In a recent session of the Académie de chirurgie, Desjacques and Clert presented conclusions drawn from twenty-four cases of thoracic wounds. Intervention is now generally recommended. According to the speakers, a distinction must be made between cases in which the thorax is open and those in which no pulmonary lesion is noted. If the lung is exposed, suture of the pulmonary tissue is indicated. If the wound is situated in the precordial region, intervention must be made without waiting for the appearance of cardiac signs or hematopericardium. Hemostasis is indispensable. If the base of the thorax is affected, prompt intervention is indicated. The local symptoms will decide whether the path of the projectile should be followed and the thorax attacked or if entry should be made by way of the abdomen. However, it is better to open the thorax and to make an abdominal exploratory incision than to perform the delicate operation of thoracicophrenolaparotomy. The sequels of an intervention in the thorax are usually uninvolved. If the hemothorax is not too abundant it is absorbed; suppuration is exceptional, but often a "secondary aggravation" of symptoms is encountered. An enormous collection of pleural serum develops, because of the presence of clots. Secondary pleurotomy is then indicated.

Aseptic Pus Therapy

The veterinary art at present contributes its experiences to medical therapeutics at the Académie de médicine. During the World War and in the years following more than 370,000 doses of aseptic pus derived from fixation abscesses in horses were employed for the treatment of infectious lymphangitides of horses and other quadrupeds. The active substances of aseptic pus seem to be connective tissue cells and the leukocytes. Miyagawa has shown that inert cells, injected parenterally in weak doses, stimulate the homologous cells of the organism. This effect, according to its authors, M. Belin and C. Belin, is multiple. Proteolysis and conjunctival and epidermic regeneration are clearly accelerated. Besides, aseptic pus has a general stimulating effect. According to observations in several infectious diseases, it heightens the processes of defense of the organism. Mackay, of Budapest, has applied aseptic pus therapy to extensive burns of the second degree. He made an injection of 2 cc. of pus diluted in a 1:8 ratio every two or three days and achieved noteworthy results.

OSLO

(From a Special Correspondent)

Nov. 11, 1939.

Who Has Perfect Health?

Recent correspondence in the *Tidsskrift for den norske lægeforening*, the journal of the Norwegian Medical Association, has focused attention on a problem which is none the less engrossing for being more or less insoluble. It concerns the issue of certificates to the effect that so-and-so is perfectly healthy. It is the fashion now for every employer, public or private, to ask for such a certificate, which is expected to safeguard the employer from claims for compensation on behalf of employees whose health has broken down. It is the state which has set the example and the pace in this field, and now municipal authorities and private concerns have followed suit. Unfortunately, perfect health, like perfect beauty, is an ideal rather than a reality. And it is a poignant irony of modern life that, the greater the advances in medical science, the greater is the number of persons who deviate more or less from the ideal standards of health.

A generation ago the subjects of diabetes, tuberculosis, pernicious anemia, myxedema and many other diseases would not have been applicants for regular work for the simple reason that they would have been incapable of any work. But today there are thousands of diabetic individuals who, thanks to insulin, are much healthier and fitter for work than many an employee whose chief ailment is neurasthenia or insomnia. Then there are the thousands of ex-sanatorium patients whose working capacity has been completely restored by an artificial pneumothorax or some thoracoplastic operation but who cannot be certified as being physiologically and anatomically normal and healthy human beings. Writing on this subject, Dr. H. F. Höst urges the state and municipal authorities to take the lead by revising to a certain extent the high standard heretofore set for applicants for employment. What is needed more than anything else is a readjustment of certain fundamental conceptions in physiology and pathology. For at present prognosis hinges far too stiffly on the morbid anatomy of a bygone generation,

taking quite inadequate account of those vital processes which are so difficult to measure and which yet have the last say in the matter.

Should Public Hospital Diets Be Uniform?

It may seem strange that in Norway a question should arise concerning uniformity of hospital diets. But the inequality of man cannot be ignored, however perfect the doctrines of socialism may be in theory, and even in our public hospitals class distinctions are being made. Dr. Erling Rustung, who is attached to the University Hygiene Institute in Oslo, recently addressed a circular to the 136 hospitals mentioned in the 1938 year book of the Norwegian Medical Association asking the directors to answer several questions concerned with the board and lodging of their patients. He obtained replies from 111 hospitals, in sixty-eight of which it transpired that the board and lodging were the same for all. There were six hospitals in which, on the payment of an extra fee, the patient could have a ward to himself, but even in these cases there was only one dietary. In twenty-nine hospitals single bed wards and better food could be obtained on the payment of an extra charge. There were also eight hospitals with three dietaries at as many different prices.

In their replies to Dr. Rustung, several of the hospital directors commented on this problem of better food for richer patients. One of them wrote that the patient's food in a hospital is a part of his treatment and it is therefore monstrous to draw a dietetic distinction between poor and rich. There can be only one treatment, and that the best. But a few correspondents leavened their socialism with the reflection that the finances of a hospital may be aided by letting the rich pay comparatively big fees in return for certain dietetic privileges. In most cases, however, it is clear that a uniform dietetic standard is that which is most in vogue in Norway and that which is approved of by most of the authorities responsible for hospital administration.

The Norwegian Radium Hospital

Only a few years old, the Norwegian Radium Hospital near Oslo has already become a national institution greatly appreciated by the public. It is to a large extent the child of one man, Dr. S. A. Heyerdahl, who in February 1938 retired as its senior medical officer. His place in this respect has been taken by Dr. Rolf Bull Engelstad, with whose publications on radiologic subjects many outside Norway are familiar. The last annual report of this institution has recently been published and covers the year 1938. More than half the space in this report is devoted to a monotonous tabulation of all the patients who were treated in 1938. The reader is left with the impression of having lost sight of the wood because of the wealth of individual trees in it. Elsewhere in the report there are many items of interest.

In the year under review, 5,607 patients underwent polyclinic examination, only 340 being new patients. In the same period the number of patients receiving treatment was 1,760, and the daily number of patients given resident treatment was on the average between eighty-five and eighty-six, the highest number in one day being ninety-four and the lowest number sixty-eight. The anesthesia induced in 151 cases was varied enough: ether narcosis in nineteen cases, spinal anesthesia in forty-two, local anesthesia in thirty and evipal narcosis in forty-eight. It was noteworthy that there was only one chloroform narcosis. Changes in fashion are also noted in a table showing the operations performed. Here one finds electrocoagulation figuring in fifty-two cases, nineteen of which concerned cancer of the vulva and twelve cancer of the tongue. Exploratory laparotomies were performed in seven cases. The lack of information about late results and follow-up inquiries reflects the fact that this particular hospital is quite new.

BUDAPEST

(From Our Regular Correspondent)

Nov. 15, 1939.

Appeal of Medical Association to Minister of War

After the World War the Hungarian Medical Association made an appeal to the ministry of war as a result of which military surgeons were declared to be of the same rank and with the same pay as combatant officers. Soon, however, the ministry of war found a new grouping necessary and military surgeons were placed in a lower group. The medical profession did not protest against this setback and the active army surgeons accepted the situation obediently. The reserve physicians did not deem this important, since at that time there was no compulsory military service in Hungary and nobody thought there was any danger of a new war. The medical association has again appealed to the ministry of war requesting that physicians in military service be given equal rank with combatant officers. The appeal argues that physicians serving in public hospitals and in the army are indispensable, sharing in all the dangers of war. During the World War many physicians were wounded or killed. The appeal further requested that university professors, lecturers and readers as well as senior hospital physicians and chief physicians of the ambulatories be given adequate rank and pay according to their scientific abilities. At present there are many prominent men in the medical profession listed as subaltern officers in the military registry books. It is expected that the ministry will decide in favor of the physicians, in view of the fact that in almost all neighboring countries military surgeons are equal in rank and salary with combatant officers.

Professor Schaffer Is Dead

Charles Schaffer, retired professor and director of the Budapest Neurologic and Psychiatric Clinic, died in his seventy-fifth year. During his career there was no one more diligent and successful in research on the histology of the brain. He started his work in a laboratory fitted up with his own money in the hospital of the poorhouse; later he moved to Professor Lenhossék's anatomic institute. He was interested in private practice only so far as it seemed necessary in his investigations. In the field of histology of the nervous system his work attracted the attention of the whole scientific world. Professor Schaffer was the greatest of contemporary Hungarian medical scientists.

Marriages

MARVIN A. BLANTON JR., Union City, Tenn., to Miss Katherine Geraldine Martin of Staten Island, N. Y., October 21.

ORION O. FEASTER to DR. ANNETTE BIEKER, both of St. Petersburg, Fla., in Dunedin, November 9.

WILLIAM HUDSON BROOKS, Sardis, Miss., to Miss Grace Evelyn Taylor at Helena, Ark., October 29.

PETER ALEXANDER DROHOMER to Miss Harriett Perry Coley, both of Daytona Beach, Fla., October 24.

GEORGE C. CARLSON, Quitman, Miss., to Miss Christine Wooley of Memphis, Tenn., October 8.

KENNETH HARLAND COWDERY to Miss Dorothy Lois White, both of Warren, Ohio, November 4.

HAROLD JAMES RICKARD to Miss Constance Marcell Gardner, both of Philadelphia, November 8.

JAMES A. DICKSON, Cleveland, to Mrs. Consuelo Proudfit of Macon, Ga., in November.

BLISS BARTLETT CLARK, New York, to Miss Carolyn Morse at Montclair, N. J., October 21.

LOUIS KOVITZ, Kansas City, Mo., to Miss Dorothy Allis of Los Angeles, November 23.

CHARLES S. CARTER, Bells, Texas, to Mrs. A. O. Belote of Denison, August 30.

JACK I. WOOLF to Miss Orien Levy, both of Dallas, Texas, September 10.

Deaths

Josiah Newhall Hall ● Denver; Harvard Medical School, Boston, 1882; professor of medicine emeritus at the University of Colorado School of Medicine, died December 17 at 80 years of age of pneumonia and myocarditis. He was a member of the Judicial Council of the American Medical Association from June 1921 to June 1931; a member of the House of Delegates in 1903, again in 1906, serving until 1908, and from 1919 to 1921. After practicing in Sterling, Colo., 1883-1892, he moved to Denver. He was mayor of Sterling in 1888-1889. From 1897 to 1902 he was professor of therapeutics at the University of Colorado School of Medicine and professor of medicine at Gross Medical College and later at Denver and Gross Medical College, continuing at the university after the merger of the schools. Dr. Hall was president of the Colorado State Board of Medical Examiners in 1891, of the state board of health in 1903-1904, of the American Therapeutic Society in 1916-1917 and of the Colorado State Medical Society in 1900. He was a fellow of the American College of Physicians and a member of the American Clinical and Climatological Association. During the World War he served as major in the medical corps, first as chief of the medical service at Base Hospital, Camp Logan, Texas, and then as consultant in internal medicine to the base hospitals of the Southwest and Western cantonments. He was on the staffs of Mercy, Denver, St. Joseph's and St. Francis hospitals. In addition to articles on diseases of the heart and lungs, he was the author of "Borderline Diseases," published in 1915, and the section on gunshot wounds, burns and scalds in Peterson and Haines' "Text-Book of Legal Medicine and Toxicology." Quite recently he had published for private circulation his personal reminiscences of a busy and useful life. He was widely beloved as a sincere, earnest, capable physician, as a leader in establishing the ethics and the true tradition of medical service, and as a pioneer in the building of medicine in the West.

Thomas Rundle Neilson ● Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1880; emeritus professor of genito-urinary surgery at his alma mater, and formerly emeritus professor at the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania; member of the American Surgical Association and the American Urological Association; fellow of the American College of Surgeons; past president of the College of Physicians of Philadelphia; consulting surgeon to St. Christopher's Hospital for Children; for many years on the staff of the Episcopal Hospital; aged 81; died, October 25, at his home in Devon, Pa.

Dennis John McDonald, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1888; member of the Medical Society of the State of New York; fellow of the American College of Surgeons; formerly adjunct professor of laryngology and rhinology, New York Polyclinic Medical School and Hospital; for many years a member of the board of education; laryngologist to the Misericordia Hospital; laryngologist and otologist to the Dominican Convent of Our Lady of Rosary, New York, and St. Agnes Convent, Sparkhill; aged 74; died, October 8.

John Wesley Hanner ● Colonel, U. S. Army, retired Burlingame, Calif.; Vanderbilt University School of Medicine, Nashville, Tenn., 1901; entered the army as an assistant surgeon in 1902; was awarded the silver star and the distinguished service medal for service during the World War; rose through the various ranks to that of lieutenant colonel in 1917; retired in 1922 for disability in line of duty; by a special act of Congress dated June 21, 1930, was retired as a colonel; aged 62; died, October 1.

Albert Charles Moerke ● Burlington, Iowa; Bennett College of Eclectic Medicine and Surgery, Chicago, 1896; at one time secretary of the Des Moines County Medical Society; formerly member of the state board of health and of the state board of medical examiners; past president of the Iowa Society of Clinical Surgeons; chief of staff, Burlington Protestant Hospital; on the staff of the Mercy Hospital and St. Francis Hospital; aged 72; died, October 30, of carcinoma of the colon.

Henry Dietrich ● Los Angeles; Rush Medical College, Chicago, 1898; emeritus professor of medicine (pediatrics), University of Southern California College of Medicine; member of the American Pediatric Society and member and past president of the American Academy of Pediatrics; aged 63; for many years chairman of the executive committee of the medical staff of the Children's Hospital, where he died, October 16, of coronary thrombosis.

Earle Rogers Whipple ● Steelton, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1908; member of the House of Delegates of the American Medical Association in 1930; past president of the Dauphin County Medical Society and of the Harrisburg Academy of Medicine; aged 57; served on the staff of the Harrisburg Hospital, where he died, October 23, of hypertension and heart disease.

L. Edward Villiaume, Buffalo; University of Buffalo School of Medicine, 1903; past president of the Erie County Medical Society; member of the Medical Society of the State of New York; member and past president of the staff of the Mercy Hospital; aged 62; died, October 16, in the Strong Memorial Hospital, Rochester, N. Y., of a head injury received on a golf course about two months previously.

Thomas Richard McHugh ● Los Angeles; University of Michigan Homeopathic Medical School, Ann Arbor, 1901; fellow of the American College of Surgeons; formerly assistant professor of surgery at the College of Medical Evangelists, Loma Linda; served during the World War; formerly on the staff of the Queen of Angels Hospital; aged 62; died, October 21.

Herman Trossbach, Bogota, N. J.; Long Island College Hospital, Brooklyn, 1907; member of the Medical Society of New Jersey; fellow of the American College of Physicians; past president of the Bergen County Medical Society; aged 58; on the staff of the Hackensack (N. J.) Hospital, where he died, October 1, of hypertension and chronic nephritis.

George Farragut Raynor, New York; New York Homeopathic Medical College and Hospital, 1900; clinical professor of medicine at his alma mater; served the Metropolitan Hospital in various capacities; associate editor of the *Journal of the American Institute of Homeopathy;* aged 68; died, November 1, at the Flower Hospital of coronary thrombosis.

John Gallwey ● San Francisco; University of California Medical Department, San Francisco, 1885; fellow of the American College of Surgeons; a founder and past president of St. Francis Hospital; formerly member of the board of regents of the University of California and a member of the city park commission; aged 76; died, October 16.

Emil Ries ● Chicago; Kaiser-Wilhelms-Universität Medizinische Fakultät, Strassburg, Germany, 1888; past president of the Jackson Park Branch of the Chicago Medical Society and of the Chicago Gynecological Society; member of the Central Association of Obstetricians and Gynecologists; aged 74; died, November 14, of coronary occlusion.

Frederick Herbert Baker, Worcester, Mass.; Harvard Medical School, Boston, 1893; member of the Massachusetts Medical Society; for many years medical examiner for the city; aged 72; formerly on the staffs of the Worcester City Hospital, St. Vincent Hospital and the Memorial Hospital, where he died, October 1, of pneumonia.

Etley Price Smith ● Fairmont, W. Va.; Jefferson Medical College of Philadelphia, 1909; fellow of the American College of Surgeons; on the staff of the Cook Hospital; past president of the Marion County Medical Society; served during the World War; aged 57; died, October 18, in Saranac Lake, N. Y., of pulmonary tuberculosis.

Maurice Ralph Zentner, Trenton, N. J.; New York Homeopathic Medical College and Flower Hospital, 1932; member of the Medical Society of New Jersey and the American Society of Anesthetists; on the staff of the William McKinley Memorial Hospital; aged 33; died, October 30, in the University Hospital, Philadelphia.

John Edwin Musgrave, Excelsior Springs, Mo.; University Medical College of Kansas City, Mo., 1907; member of the Missouri State Medical Association; past president of the Clay County Medical Society; served during the World War; aged 61; died, October 28, in the Excelsior Springs Sanitarium.

James Michael Cassidy, West Springfield, Mass.; Georgetown University School of Medicine, Washington, D. C., 1929; member of the Massachusetts Medical Society; aged 35; died, October 4, of burns received when his chair caught fire from a cigaret which he had been smoking before he fell asleep.

Edwin Link Ellis ● Maryville, Tenn.; University of Tennessee Medical Department, Nashville, 1903; University and Bellevue Hospital Medical College, New York, 1904; past president of the East Tennessee Medical Association; aged 62; died, October 22, in the Johns Hopkins Hospital, Baltimore.

Alfred Ervan Chesley ● Lawrence, Mass.; University and Bellevue Hospital Medical College, New York, 1904; member of the New England Otological and Laryngological Society; for many years on the staff of the Lawrence General Hospital; aged 63; died, October 27, of cerebral hemorrhage.

Willard Ralph Starks, Chatham, N. Y.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1891; member of the Medical Society of the State of New York; bank president; aged 73; died, October 6, in a hospital at Albany of lymphosarcoma of the cervical glands.

August Benjamin Hromadka ● Santa Monica, Calif.; Northwestern University Medical School, Chicago, 1907; fellow of the American College of Surgeons; served during the World War; aged 59; vice president and on the staff of the Santa Monica Hospital, where he died, October 26.

Doris Ellen Johnson, Youngsville, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1934; member of the Medical Society of the State of Pennsylvania; aged 33; died, October 23, in the Warren (Pa.) General Hospital following an emergency operation for ectopic pregnancy.

William Charles Leary ● Springfield, Mass.; Bellevue Hospital Medical College, New York, 1894; in 1934 member of the House of Delegates of the American Medical Association; aged 70; on the staff of the Mercy Hospital, where he died, October 13, of acute leukemia.

William Frederick Reich, Milwaukee; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1899; member of the State Medical Society of Wisconsin; for many years school physician; aged 69; died, October 12.

James F. Blanchard, Newport, Vt.; University of Vermont College of Medicine, Burlington, 1887; member of the Vermont State Medical Society; formerly acting assistant surgeon in the U. S. Public Health Service; aged 77; died, October 16, of cerebral hemorrhage.

Walter Ernest Boyer, Williamsport, Pa.; Medico-Chirurgical College of Philadelphia, 1907; member of the Medical Society of the State of Pennsylvania; served during the World War; aged 60; died, October 22, of acute coronary thrombosis.

David Louis McAninch, Lamartine, Pa.; Jefferson Medical College of Philadelphia, 1879; member of the Medical Society of the State of Pennsylvania; past president of the Clarion County Medical Society; aged 84; died, October 6, of carcinoma of the bladder.

Henry Clifford Gerrard, Springfield, Mass.; University of Vermont College of Medicine, Burlington, 1912; served during the World War; aged 54; died, October 15, at the Veterans Administration Facility, Rutland Heights, of pulmonary tuberculosis.

George Aitken Stevenson, Albert Lea, Minn.; College of Physicians and Surgeons, Keokuk, Iowa, 1880; Rush Medical College, Chicago, 1889; aged 85; died, October 25, in St. Peter (Minn.) State Hospital of arteriosclerosis and bronchopneumonia.

Harry Leo Moskowitz ● New York; University and Bellevue Hospital Medical College, New York, 1912; on the staffs of the Beth Israel Hospital and the Jewish Maternity Hospital; aged 50; died, October 31, of carcinoma of the intestine.

Frank Joseph Weigand ● Richmond Hill, N. Y.; Long Island College Hospital, Brooklyn, 1900; fellow of the American College of Physicians; on the staff of the Jamaica (N. Y.) Hospital; aged 60; died, October 29, in an automobile accident.

Roy Struble Gibbs ● San Bernardino, Calif.; University of Southern California College of Medicine, Los Angeles, 1901; past president of the San Bernardino County Medical Society; aged 69; died, October 30, of arteriosclerotic heart disease.

William Sharp Cranford, Taylorsville, Miss.; Memphis (Tenn.) Hospital Medical College, 1900; aged 68; died, October 31, in the Veterans Administration Facility, Gulfport, of staphylococcic septicemia secondary to abscess of the left leg.

Charles Eugene Parker ● Sterling, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; on the staff of the Public Hospital; aged 69; died, October 23, of arteriosclerosis.

Anton Johnson Moe ● Sioux Falls, S. D.; Rush Medical College, Chicago, 1897; fellow of the American College of Surgeons; chief of staff of a hospital bearing his name; aged 71; died, October 18, of cardiac decompensation.

Ulysses Simpson Mullins, Atlantic, Iowa; Rush Medical College, Chicago, 1895; past president of the Cass County Medical Society; formerly treasurer of the medical staff of the Atlantic Hospital; aged 67; died, October 11.

M. Clifford Pardoe, Brooklyn; New York Homeopathic Medical College and Hospital, New York, 1899; aged 71; died, October 25, of osteomyelitis of the jaw bone due to radium and x-ray burns and carcinoma of the mouth.

Robert L. Casburn, Sumner, Miss.; Long Island College Hospital, Brooklyn, 1884; aged 82; died, October 3, at the Baptist Hospital, Memphis, Tenn., of uremia, hypertrophy of the prostate and chronic myocarditis.

Maurice A. Neufeld ● Chester, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1896; formerly police surgeon; for many years on the staff of the Chester Hospital; aged 68; died, October 20.

Frank Beely, Pittsburgh; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1886; member of the Medical Society of the State of Pennsylvania; aged 85; died, October 19, of coronary occlusion.

Robert Jasper Shaife, Colfax, Wash.; Kansas City (Mo.) Medical College, 1902; member of the Washington State Medical Association; formerly county health officer; aged 77; died, October 29, of pernicious anemia.

Clement Willis Sparhawk, Salem, Mass.; Harvard Medical School, Boston, 1884; member of the Massachusetts Medical Society; aged 85; died, October 22, in Watertown of cerebral hemorrhage and arteriosclerosis.

Jules John Delambre, Houston, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1902; served during the World War; aged 61; died, October 28, in Fresno of coronary occlusion.

Alexander C. Ewing, Los Angeles; Hospital College of Medicine, Louisville, Ky., 1876; member of the House of Delegates of the American Medical Association in 1903; aged 90; died, October 3, of senility.

David Brandley Plymire ● San Francisco; St. Louis College of Physicians and Surgeons, 1895; California Medical College, San Francisco, 1895; aged 70; was killed, October 15, when he fell down a 60 foot bank.

Malcolm Stalker, Walkerton, Ont., Canada; Trinity Medical College, Toronto, 1878; fellow of the American College of Surgeons; on the staff of the Bruce County General Hospital; aged 86; died, October 18.

Albert G. Huizinga Holmes ● Miami Beach, Fla.; Rush Medical College, Chicago, 1893; formerly member of the school board; aged 75; died, October 30, in the Jackson Memorial Hospital of coronary occlusion.

Carl Cutting Corson, Portland, Maine; Harvard Medical School, Boston, 1932; member of the Maine Medical Association; aged 33; on the staff of the Maine General Hospital, where he died, October 3.

Victor Rousseau, Maple Lake, Minn.; University of Minnesota Medical School, Minneapolis, 1905; member of the Minnesota State Medical Association; aged 67; died, October 15, of coronary thrombosis.

Francisco Leopoldo Abad Gonzales, Manila, P. I.; University of California Medical School, San Francisco, 1927; member of the Philippine Islands Medical Association; aged 45; died, October 7.

Henry Leo Doherty, Stoughton, Mass.; Harvard Medical School, Boston, 1920; member of the Massachusetts Medical Society; on the staff of the Norwood (Mass.) Hospital; aged 44; died, October 9.

Maurice Hirsch Grossberg ● Cleveland; Western Reserve University School of Medicine, Cleveland, 1922; on the staff of the Mount Sinai Hospital; aged 43; died, October 22, at University Heights.

Alvin Burkett Waite, Huntingdon, Pa.; Medico-Chirurgical College of Philadelphia, 1902; formerly medical director of the Pennsylvania Industrial School; aged 63; died, October 3, of lobar pneumonia.

Hubert Hawthorne London, Des Moines, Iowa; State University of Iowa College of Medicine, Iowa City, 1920; aged 46; died, October 3, in the Broadlawns General Hospital of gunshot wounds.

Adam Bert Fair, Ottumwa, Iowa; State University of Iowa College of Medicine, Iowa City, 1895; member of the Iowa State Medical Society; aged 68; died, October 21, of carcinoma of the prostate.

Hubert Haldane Lee Casselman, Chesterville, Ont., Canada; McGill University Faculty of Medicine, Montreal, 1920; aged 45; died, October 2, at the Royal Victoria Hospital, Montreal, Que.

John Gibbs Lovell, Spokane, Wash.; Northwestern University Medical School, Chicago, 1904; aged 60; died, October 13, in the Santa Monica (Calif.) Hospital of heart disease and hypertension.

Charles Worthington Vishno, New Haven, Conn.; Yale University School of Medicine, New Haven, 1885; on the staff of the Grace Hospital; aged 78; died, October 2, of bronchopneumonia.

James Blenkhorn, Stoneham, Mass.; University of the City of New York Medical Department, 1893; member of the Massachusetts Medical Society; aged 75; died, October 8, of carcinoma.

Bartholomew Charles Pasuth ● Bridgeport, Conn.; University of Maryland School of Medicine, Baltimore, 1916; served during the World War; aged 48; died, October 6, of coronary occlusion.

Benjamin Franklin Noland, Bassetts, Va.; College of Physicians and Surgeons, Baltimore, 1881; formerly member of the state legislature; aged 86; died, October 20, of angina pectoris.

Charles N. Davis, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1889; member of the American Laryngological Association; aged 78; died, October 21.

Frank A. Maxwell, Austin, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1881; University of Nashville Medical Department, 1882; aged 83; died in October.

Owen Meredith Waller ● Brooklyn; Howard University College of Medicine, Washington, D. C., 1903; formerly a clergyman; aged 71; died, October 12, of cerebral thrombosis.

Roy John Boynton, Miami, Fla.; College of Physicians and Surgeons, Boston, 1905; aged 58; died, October 21, in the Dade County Hospital of cerebral hemorrhage and hypertension.

Madison McCardy McKee, Bridgeville, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1903; on the staff of the Canonsburg General Hospital; aged 62; died, October 9.

Thomas C. Neece, Walnut Ridge, Ark.; Kentucky School of Medicine, Louisville, 1894; member of the Arkansas Medical Society; aged 71; died, October 17, of cerebral hemorrhage.

Walter John Daly, Philadelphia; Medico-Chirurgical College of Philadelphia, 1909; served during the World War; police surgeon; aged 52; died, October 17, of coronary thrombosis.

Kenneth Raymond Parmenter, Colorado Springs, Colo.; Boston University School of Medicine, 1896; aged 65; died, October 16, in Sudbury, Mass., of carcinoma of the rectum.

Preston Worley, San Antonio, Texas; Gate City Medical College, Dallas, 1903; member of the State Medical Association of Texas; aged 67; died, October 8, in New York.

Albert A. Ogle, Indianapolis; Chicago Homeopathic Medical College, 1898; member of the Indiana State Medical Association; aged 71; died, October 31, of coronary occlusion.

Lewis Edward Davis, Centralia, Pa.; Medico-Chirurgical College of Philadelphia, 1900; member of the Medical Society of the State of Pennsylvania; aged 64; died, October 14.

Ira Robertson Teitsworth, Kingston, Pa.; Medico-Chirurgical College of Philadelphia, 1904; on the staff of the Nesbitt Memorial Hospital; aged 62; died, October 21.

Charles Otto Schoier, Jasper, Ind.; University of Louisville (Ky.) Medical Department, 1921; aged 63; died, October 25, in the Daviess County Hospital, Washington.

William Joseph Hutchinson, San Antonio, Texas; University of Southern California School of Medicine, Los Angeles, 1909; aged 73; died, October 30, of tuberculosis.

George M. Brockway ● Phoenix, Ariz.; University of Buffalo School of Medicine, 1890; for many years on the staff of St. Joseph's Hospital; aged 75; died, October 17.

Wilbur Martin Pearce ● Baltimore; University of Pennsylvania Department of Medicine, Philadelphia, 1893; aged 72; died, October 5, of carcinoma of the right lung.

Meleatus Bruce, Richmondville, N. Y.; Albany (N. Y.) Medical College, 1898; member of the Medical Society of the State of New York; aged 70; died, October 25.

Willis Adam Turnbull, Tampa, Fla.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1890; aged 71; died, October 23.

Henry Martin McLaurine, Lynnville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1876; aged 85; died, October 1, of bilateral bronchopneumonia.

John A. Beck, Salinas, Calif.; Hahnemann Hospital College of San Francisco, 1897; member of the California Medical Association; aged 78; died, October 28.

Theodore Franklin Johnson, Perry, Iowa; Homeopathic Hospital College, Cleveland, 1876; aged 90; died, October 10, of osteo-arthritis and bronchopneumonia.

Charles F. Ryan, Fletcher, Ohio; Medical College of Ohio, Cincinnati, 1885; member of the Ohio State Medical Association; aged 79; died, October 29, in Columbus.

Howard Jay Westney, Atlantic City, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1907; aged 54; died, October 18, of arteriosclerosis.

Arne Wilbur Clouse, Geneva, Pa.; Rush Medical College, Chicago, 1900; served during the World War; aged 67; died, October 30, of cerebral hemorrhage.

Avery Constantine Wilkins, Shreveport, La.; Eclectic Medical Institute, Cincinnati, 1896; aged 68; died, October 26, of malignancy of the biliary tract.

Rose Marie Merrill-Hyde, Miles City, Mont.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1896; aged 74; died, October 3.

Alden Ottice Davis, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1897; aged 67; died, October 11, in the Allegheny General Hospital.

Aaron D. Sanders, Corsicana, Texas; Gate City Medical College, Dallas, 1907; aged 68; died, October 21, of cerebral hemorrhage and arteriosclerosis.

George Adrien Poux, Guys Mills, Pa.; Jefferson Medical College of Philadelphia, 1915; aged 45; died, October 24, in St. Luke's Hospital, St. Louis.

James T. M. Lindsay, Houston, Texas; Meharry Medical College, Nashville, Tenn., 1894; aged 76; died, October 5, in the Houston Negro Hospital.

William Edward Conlan, San Francisco; University of California Medical Department, San Francisco, 1886; aged 77; was found dead, October 20.

Edwin C. Brinkerhoff ● Bicknell, Utah; Washington University School of Medicine, St. Louis, 1928; aged 41; died, October 24, of uremia.

George W. Fockler, Delavan, Ill.; Jefferson Medical College of Philadelphia, 1887; aged 76; died, October 28, of carcinoma of the prostate.

Edwin Harvey Durgin, Cupertino, Calif.; Boston University School of Medicine, 1889; aged 75; died, October 14, of coronary occlusion.

Franklin Schaufelberger, Hastings, Neb.; Jefferson Medical College of Philadelphia, 1894; aged 72; died, October 9, of coronary occlusion.

Francis M. Martin, East St. Louis, Ill. (licensed in Indiana in 1898); aged 85; died, October 23, in Belleville of bronchopneumonia.

Rufus Charles Harris ● St. Louis; Missouri Medical College, St. Louis, 1898; aged 63; died, October 10, in St. Mary's Hospital.

Margaret White Cutting, Agnew, Calif.; University of California Medical Department, San Francisco, 1909; aged 60; died, October 8.

Michael Baker, Denver; Gross Medical College, Denver, 1889; formerly postmaster of Evergreen; aged 85; died, October 25.

George R. Ford, Trinidad, Colo.; Kansas City (Mo.) Hahnemann Medical College, 1905; aged 77; died, October 28.

Frederick John Walker, Wheatley, Ont., Canada; University of Toronto Faculty of Medicine, 1905; died, October 14.

Edwin Forrest Moore, Vista, Calif.; Kansas City (Mo.) Medical College, 1886; aged 83; died, October 13, in San Diego.

Earl Leslie Bennett, Long Beach, Calif.; Jefferson Medical College of Philadelphia, 1914; aged 54; died, October 12.

Cicero Fain Peck, Somerville, Ala.; Memphis (Tenn.) Hospital Medical College, 1890; aged 76; died, October 4.

Ira Carleton Ratterree, Los Angeles; College of Physicians and Surgeons, Little Rock, 1910; aged 53; died, October 17.

William M. Lottridge, Littleton, Ill.; Columbus Medical College, 1880; aged 89; died, October 21, of heart disease.

Jacob Louis Brower ● New York; Long Island College Hospital, Brooklyn, 1905; aged 66; died, October 15.

John L. Bradley, Toronto, Ont., Canada; Trinity Medical College, Toronto, 1894; aged 70; died, October 14.

Robert S. Magee, Long Beach, Calif.; Kansas City (Mo.) Medical College, 1890; aged 78; died, October 14.

John W. Barnes, Cato, N. Y.; Chicago Homeopathic Medical College, 1887; aged 82; died, October 8.

Joseph J. Stewart, Lamar, Ark. (licensed in Arkansas in 1903); aged 83; died, October 15.

Bureau of Investigation

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE.—The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consignor; (3) the composition; (4) the type of nostrum; (5) the reason for the charge of misbranding, and (6) the date of issuance of the Notice of Judgment—which is considerably later than the date of the seizure of the product and somewhat later than the conclusion of the case by the Food and Drug Administration.]

Alkaloids.—De Free Co., Holland, Mich. Composition: Chiefly baking soda, sodium phosphate and citric and tartaric acids. Fraudulently represented to "alkalinize" the system, dispel fatigue and "lack of pep" and to be "safe and harmless."—[*N. J. 29793; March 1939.*]

Astoco Tablets.—Astone Products Co., Lansdale, Pa. Composition: Essentially corn starch, sugar, and plant material, including ephedrine. Fraudulently represented as a remedy for asthma, bronchitis, chronic coughs, la grippe and whooping cough.—[*N. J. 30009; May 1939.*]

Barbotigo.—Barbetigo Co., Salt Lake City. Composition: Water and zinc sulfate (18.2 Gm. per hundred cubic centimeters). Fraudulently represented as a germicide and a remedy for pyorrhea, tonsilitis, athlete's foot and some other conditions.—[*N. J. 30005; May 1939.*]

Brome-Ease.—Honeroff Laboratories, Inc., Chicago, and Better Products Co., Marion, Ind. Composition: Acetanilid (6.33 grains per ounce) and small amounts of caffeine, citric acid and baking soda. Fraudulently represented as giving relief in stomach disorders.—[*N. J. 29798; March 1939.*]

Cayola.—D. R. C. Devine, Philadelphia. Composition: Chiefly epsom salt, sugar, baking soda and tartaric acid, with small amounts of salicylic acid and aspirin. For indigestion, arthritis and neuritis. Fraudulent therapeutic claims.—[*N. J. 29785; March 1939.*]

Cetola.—Aryan Herb-anTonics Co., Gary, Ind. Composition: Chiefly extracts of plant drugs including hydrastis, volatile oils, including sandalwood and cubeb, with balsam copaiba and water. Fraudulently represented to cure gonorrhea, stricture, prostate trouble, bladder infections and "weak manhood."—[*N. J. 30015; May 1939.*]

Effervescent Alkaline Tablets.—Honeroff Laboratories, Chicago. Composition: Chiefly baking soda, cream of tartar, citric acid, acetanilid (1.1 grains per tablet) and aspirin. Misbranded because amount or proportion of acetanilid not declared on label and because fraudulently represented to be a remedy for rheumatism.—[*N. J. 29794; March 1939.*]

Effervescent for Headaches.—Honeroff Laboratories, Inc., Chicago, and Better Products Co., Marion, Ind. Composition: 14.24 to 14.91 grains of acetanilid per ounce in different consignments.* Declared adulterated and misbranded because of false labeling of acetanilid content.—[*N. J. 29794; March 1939.*]

George's Compound.—Nick A. George, Casper, Wyo. Composition: Essentially sodium salicylate, extracts of plant drugs (including hops), sugar and water. Fraudulently represented as virtually a cure-all.—[*N. J. 29781; March 1939.*]

Hessel's Oil.—Vita Laboratories, Philadelphia. Composition: Essentially peppermint oil. Fraudulently represented as a remedy for asthma, diarrhea, hay fever, heart trouble, paralytic stroke and many other conditions.—[*N. J. 30004; May 1939.*]

Hotone.—Astone Products Co., Lansdale, Pa. Composition: Chiefly boric acid, ephedrine, and a small amount of chlorbutanol dissolved in water. For hay fever, catarrh, sinus trouble, bloodshot, smarting or watery eyes, etc. Fraudulent therapeutic claims.—[*N. J. 30009; May 1939.*]

Juvenol.—Himalayan Research Laboratories, Santa Monica, Calif. Composition: Essentially mineral oil (about 27 per cent) and fatty oils including castor oil. Declared adulterated because not wholly composed of vegetable oils as represented; misbranded because fraudulently represented as a "rejuvenator" and as a remedy for kidney stones, gallstones, obesity, rheumatism and some other disorders.—[*N. J. 30002; May 1939.*]

Kane's Gon-Son.—Kane Laboratories, Portland, Ore. Composition: Essentially senna leaves, sassafras bark, licorice root and baking soda. Fraudulently represented as a "general tonic" and a remedy for kidney, liver, stomach and blood disorders.—[*N. J. 30006; May 1939.*]

McCane's (Dr.) Pep Tonic.—Queen Ann Co., Atlanta, Ga. Composition: Essentially an aqueous solution of iron chloride, epsom salt and sodium lactate, with small amounts of plant material and an unidentified alkaloid. For kidney, liver, stomach, blood and heart disorders, etc. Fraudulent therapeutic claims.—[*N. J. 29794; March 1939.*]

Traiser's Famous Oil.—Kane Laboratories, Portland, Ore. Composition: Chiefly gasoline, menthol, and oils of mustard and turpentine. Misbranded because falsely represented as a "rattlesnake oil" and because fraudulently exploited as useful in paralysis, deafness, rheumatism, pleurisy, hay fever, asthma, etc.—[*N. J. 30006; May 1939.*]

Correspondence

"TIME MARCHES ON"

To the Editor:—I had another check made on the facts in *Time's* "Misery Harbor" story of December 4. Since then you have published an editorial "'Time' Marches On" in the December 9 issue of THE JOURNAL. Your telegram will appear in the "Letters" column of the current issue of *Time* (December 18) with editorial comment. Your editorial is such an abusive attack that I want to answer it in detail.

It says:

> The article in *Time* is mentioned here because it is replete with absolute misstatements of fact beyond anything of a similar character published in the field of medicine even in that periodical during recent years.

And then adds:

> Indeed the article betrays a carelessness almost incomprehensible in a periodical which has in the past frequently gone to extended lengths to secure accuracy.

The "extended lengths" to which *Time* went to secure accuracy in the "Misery Harbor" story are as follows: Material on the situation in Cook County Hospital had been gathered since October 1938. Before *Time's* story was written, an editorial assistant personally interviewed in Chicago the principal persons involved. They were Dr. Karl A. Meyer (former medical superintendent of the hospital), Dr. Marshall Davison (present superintendent), Dr. Irving S. Cutter (chairman of the special committee which investigated the hospital in 1937). These were supplemented by telephone interviews with Dr. J. Roscoe Miller (assistant dean of Northwestern University Medical School, of which Dr. Irving S. Cutter is dean); Dr. Raymond W. McNealy (chief of staff at Cook County Hospital and the hospital's representative at various committee meetings); an assistant in A. M. A. Education Secretary William D. Cutter's office; the secretary to Dr. Malcolm T. MacEachern (associate director of the American College of Surgeons and director of its hospital activities). In addition, we consulted, of course, the "Report of Committee on Survey of Cook County Hospital," September 1937, which outlines in detail the unfortunate conditions then prevailing at the hospital, newspaper articles on the situation (particularly those appearing in the Chicago *Tribune*) and THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. We did not, as you recommended in your editorial, secure the facts "merely by the use of the telephone." If we had gotten our facts by telephone from you, our story—judging by your editorial—would not have given a very enlightening account of what happened at Cook County Hospital. And incidentally, when one of our editorial assistants telephoned you in the fall of 1938 to discuss Cook County Hospital, you declined to discuss the matter and referred the question to Dr. Irving S. Cutter.

Now let's take up the eleven "errors" which you listed in your editorial. Italicized are the points as published by you (first the statement made by *Time* and then what you call the "correct statement"). My comment follows each:

> 1. *"During the last four years Cook County Hospital has been a battleground for two warring medical factions." There has been no battle between two warring medical factions.*

You leave the entirely false impression that there actually has been no real controversy. What would you call the situation? It has long been a matter of common knowledge. The Chicago *Tribune* (whose medical adviser, as you stated in your telegram, is Dr. Irving S. Cutter) quoted (Oct. 18, 1938) Dr. Meyer as saying in connection with the removal of the hospital from the approved list by the College of Surgeons:

> The doctors at this hospital have taken this sandbagging just about as long as they are going to. There is less politics in the County Hospital than in any other institution in the city.
>
> We'd be glad to have a comparative study made, banking our institution against any or all of them in the city. But they (American College of Surgeons and American Medical Association) won't tell us what they think is wrong—they just keep on making indirect attacks.

On Nov. 18, 1939, the *Tribune* said:

County commissioners, hospital officials and A. M. A. officials said the appointment will end the long controversy over administration of the county hospital.

2. *"Last week a compromise ended the fight." There has been no compromise.*

What do you call it when each side gets something and a settlement is reached? Early in 1939 the citizens' committee urged the ouster of Dr. Meyer but the Board of Commissioners of Cook County refused to comply. In May the committee made a concession: it suggested that Meyer be made superintendent of all county institutions and a new medical superintendent be appointed. This is what the board finally did, as well as adjusting a number of other differences.

3. *"Dr. Meyer never required the hospital's army of interns to attend postgraduate classes or lectures." Lectures and conferences for interns have been held for at least ten years.*

As put by you, *Time's* statement appears incorrect. It was not. Lectures have been held but Dr. Meyer never *required* the interns to attend, believing, as he did, that experience was what interns needed. The element of compulsion, not the existence of lectures, was the point of difference.

4. *"The American Medical Association . . . believes that all interns should taper off into actual practice with at least eighty hours of medical lectures during internships." No specific number of hours of instruction has ever been mentioned, much less required, by the Council on Medical Education and Hospitals.*

Our reporter was given to understand that the hospital has agreed to require eighty hours of lectures during eighteen months' internship. This would conform with the "Essentials in a Hospital Approved for Training Interns," set forth in THE JOURNAL (Aug. 26, 1939, p. 793): "At least a weekly period should be arranged for conducting clinical-pathological conferences, x-ray lectures or other special lectures or clinics for the interns."

5. *"Consequently, four years ago, the A. M. A. dropped Cook County Hospital from its list of approved hospitals." Obviously the number of lecture hours was in no wise involved.*

Considering that the American Medical Association sets a "weekly period" for lectures as standard for training interns, it is by no means obvious that the number of lecture hours is not involved. To *Time's* reporter the participants in the controversy spoke of it as a major issue.

6. *"Over this point Cook County's Dr. Meyer and A. M. A.'s education secretary, Dr. Irving Samuel Cutter . . ." Dr. Irving S. Cutter is not the A. M. A.'s education secretary; he is Dean of Northwestern University School of Medicine.*

We referred to the right man; I admit we gave him the wrong title. Dr. Irving S. Cutter, dean of Northwestern University Medical School, was chairman of the Committee on Survey of Cook County Hospital, has long been interested in the hospital's affairs, but his relative, Dr. William D. Cutter, is actually secretary of the A. M. A. Council on Medical Education and Hospitals. He too has been closely connected with Cook County Hospital. Both scrapped with Dr. Meyer. Hence the confusion and slip, which we are correcting in our "Letters" column this week.

7. *". . . thus automatically cutting off Dr. Meyer's supply of interns from topflight medical schools." At no time has the County Hospital failed to obtain interns from the four recognized medical schools of Chicago. No others are eligible for appointment.*

Time would have stated the situation more precisely by saying "topflight interns from Chicago medical schools." Any promising medical school graduate who had a choice of internships would think twice before choosing a hospital without A. M. A. approval—for obvious reasons.

8. *". . . A. M. A. last spring brought public opinion to bear." At no time has the A. M. A. made any attempt to influence public opinion concerning the County Hospital. It has studiously refrained from comment upon the situation.*

Public opinion was brought to bear by the citizens' committee, which represented the attitude of the A. M. A. (see point 11). As to A. M. A. comments, have you forgotten the article in THE JOURNAL (Dec. 3, 1938, p. 2127) stating that the A. M. A. Council on Medical Education and Hospitals "found itself in fullest accord" with the recommendations of the Committee on Survey of Cook County Hospital and in which the Council urged the appointment of a physician experienced in hospital management as assistant to Warden Brigadier General Manus McCloskey? Also, has not the A. M. A. made various recommendations with respect to the hospital? Dr. Malcolm T. MacEachern (Associate Director of the American College of Surgeons) stated in the Hospital Council *Bulletin* (September 1938):

And finally the public is asking another question, "What is to be the future of the Cook County Hospital?" This remains undetermined but one can safely say that if the content of the Cutter report, backed up by recommendations made in reports submitted by the American College of Surgeons and the American Medical Association, were carried out to the fullest extent and in the truest spirit, without interference politically or otherwise, the County Hospital would attain the highest pinnacle or respect, success, and efficiency.

9. *"An A. M. A.-inspired citizens' committee . . ." The A. M. A. had nothing whatever to do with the "Citizens' Committee" which was appointed by the Board of County Commissioners upon the recommendation of a committee of hospital experts previously employed by the County Board to investigate and report upon conditions at the County Hospital.*

The A. M. A. Council on Medical Education and Hospitals (THE JOURNAL, Dec. 3, 1938, p. 2127) expressed approval of the report recommending that the citizens' committee be formed. Dr. Irving S. Cutter made himself "available" to the citizens' committee as adviser. The A. M. A. and the citizens' committee were spoken of interchangeably by the participants.

In 1938 hospital officials were reported seeking an A. M. A. survey of the hospital. The Chicago *Times* (Oct. 20, 1938) stated:

The American Medical Association will be asked to make a survey of the Cook County hospital, Dr. R. W. McNealy, president of the hospital medical staff, said yesterday. . . . Clayton F. Smith, president of the county board, said he favored Dr. McNealy's request to the A. M. A. . . .

And Dr. William D. Cutter (secretary of the A. M. A. Council on Medical Education and Hospitals) was quoted in the Chicago *Tribune* (Nov. 18, 1939) as saying:

The appointment of Dr. Davison is evidently an effort to fulfil the recommendation of the American Medical Association and the citizens' committee. No action (on the hospital's reinstatement) can be taken by the council until its meeting December 10.

10. *Said committee "* . . . hinted that the hospital might be reinstated on the A. M. A.'s list if a new director acceptable to the A. M. A. were chosen." As stated above, the Citizens' Committee had no connection whatever with the A. M. A. and therefore could not and did not claim to represent it.*

Time did not say that the citizens' committee claimed to represent the A. M. A. But the committee hinted broadly, as appeared in the Chicago *American* (March 15, 1939):

Both Charles H. Schweppe, chairman of the committee and Dr. (W. D.) Cutter said replacement of Dr. Meyer by a medical head devoting full time to the hospital would help restore the institution to the accredited list.

11. *"2) Cook County was promised reinstatement on the A. M. A.'s list some time around Jan. 1; . . . " No such promise was given.*

Yesterday, December 11, Cook County Hospital went back on A. M. A.'s approved list. If A. M. A. did not promise to restore the hospital to its approved list the coincidence is remarkable. But *Time* was not alone in finding that the hospital reorganization plan and A. M. A. approval were interwoven. Apparently most of the reporters in Chicago also found it out. Examples:

The Chicago *Times* (Nov. 19, 1939):

The A. M. A. announced, the Cook County Hospital will be returned to its list of hospitals approved for internship. The announcement followed appointment of Dr. Marshall Davison as medical director of the institution.

The Chicago *Tribune* (Nov. 18, 1939):

The American Medical Association soon will restore the Cook County Hospital to its list of hospitals approved for internship. This became certain yesterday with the county board's appointment of Dr. Marshall Davison to succeed Dr. Karl A. Meyer as hospital medical director.

The Chicago *American* (Nov. 17, 1939):

In announcing the appointment, Clayton F. Smith, president of the County Board, said it had the approval of the American Medical Association. Smith was hopeful that Dr. Davison could restore the hospital to the A. M. A.'s approved list, from which it was dropped a year ago.

Obviously, *Time* did not let A. M. A.'s cat out of the bag, but apparently you decided that you would like to bag a cat that has been running around free—and your method of doing so is to attack *Time*. As an unfair attack, I believe THE JOURNAL editorial goes "beyond anything of a similar character published even in that periodical during recent years."

MANFRED GOTTFRIED, New York.

Managing Editor of *Time*.

COMMENT.—1. *Time's* answer is to quote Karl Meyer and the Chicago *Tribune* as though they were infallible.

2. The Citizens' Committee, the Council and the College of Surgeons asked for the appointment of a "medical director." They got what they asked for.

3. Technically, *Time's* answer is correct, but its original statement conveyed the implication that there were no lectures, which was incorrect.

4. *Time's* answer is irrelevant.

5. Same as No. 4.

6. *Time* has admitted its error.

7. Same as No. 6.

8. The American Medical Association has at no time attempted to influence public opinion on this question. No statement about the Cook County Hospital situation has appeared in the editorial columns of THE JOURNAL; merely an official statement by the Council regarding the hospital's removal from the accredited list.

9. The fact that the Citizens' Committee arrived at the same conclusion as the Council surely does not justify the statement that the committee was "inspired" by the Council.

10. *Time* relies on a quotation from the Chicago *American*, March 15, 1939, which had no basis in fact.

11. The claim that the Council promised approval to the County Hospital is based on the fact that the hospital actually was approved. Such fallacious reasoning needs no further comment.—ED.

DOCTORS ON STAMPS

To the Editor:—Do you not feel that the opportunity is at hand to give a small measure of recognition to a group which has thus far been sadly neglected?

I refer to your editorial to the effect that two physicians are to be honored by an issue of postage stamps.

No one, I am sure, would wish to detract from the recognition and honors that Reed and Gorgas have received for their part in the yellow fever work. But some of us have long wondered, down through the forty years that has elapsed, why the acting assistant surgeons who served on the Yellow Fever Board, in comparison, have received such scant attention.

Agramonte, writing in 1915, stated that the definite promise was made when this board assembled that any credits or honors accruing from the board's labors would be shared by all alike. Comment on this aspect of the case is unnecessary.

Now, in all earnestness, Mr. Editor, might not that curtain which hangs before the eyes of justice be lifted a little so that occasionally it might be remembered that Lazear, Carroll and Agramonte were members of this board, all of whom were picked for their accomplishments and all of whom performed to their utmost?

Would it not be a gesture of human appreciation for the American Medical Association to suggest that one of these three receive this contemplated honor?

HARPER PEDDICORD, M.D., Redwood City, Calif.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

UNEXPLAINED FEVER AND AIR CONDITIONING

To the Editor:—Recently a patient consulted me because of recurrent bouts of unexplained fever. They occurred once every one or two months and came on around 6 p. m. and lasted until about 10 p. m. The maximum elevation of temperature has been 103 F. The next morning the patient feels completely well. Interesting enough is the fact that, at the time the patient has his bout of fever, fourteen or fifteen of his co-workers have a similar experience. All of these men are employed in an air conditioned office. Careful physical and laboratory examinations have been completely negative. Food poisoning cannot be a factor because most of these people take their meals at different places. Quinine given as a therapeutic test according to the Bass standard treatment for malaria has been of no value in preventing recurrences. I have been wondering whether it is not possible that, after these men have worked in an office at a temperature of 78 F., going abruptly into a temperature of around 100 might not in some way derange the mechanism that regulates the body temperature and produce this fever. If there are any available reports on such a possibility I would appreciate a reference.

Morgan W. Matthews, M.D., Shreveport, La.

ANSWER.—These occurrences of occasional but synchronous evening fevers in a group of workers in an air conditioned office are difficult to account for from known facts in the matter of the body temperature regulating mechanisms. Were all the fifteen workers in that office checked by competent physicians as carefully as this one patient or did they just report "feeling feverish" or "uncomfortably hot" the previous evening, after hearing the recital of this patient's evening experience on the following morning? The time 6-10 p. m. is in general the high peak of the daily body temperature curve. It is also a fact that the speed of adjustment to external temperature variations varies somewhat in apparently normal persons, the extremes being the rare individuals with a greatly reduced quantity of sweat glands. But it does not seem probable that all the fifteen workers in the office could fall in this one group. Were any of the workers free from the disturbance? And did the incidence of fever occur only on days of exceptionally high humidity? The fact that the fever appeared only once every thirty or sixty days shows clearly that the lag in the body temperature regulatory machinery in persons adjusted to 78 F., when passing suddenly into 100 F., cannot be the only controlling factor. This lag does occur. The degree and duration probably vary somewhat with the individual. In the writer, who has experienced it, the elevation of the body temperature never exceeded 1.5 degrees F. and never lasted as long as four hours. Air conditioning is now so common that if the incidents described were effects of merely a sudden change of environmental temperature from 78 F. to 100 F. there should be millions of such cases by this time. But it is a fact that such sudden temperature changes, in either direction, make one "feel" excessively hot or cold, more so than one can account for on the basis of actual changes in the body temperature. The vasomotor mechanism of the skin appears to adjust itself rather promptly to external temperature changes. The sweat secretion mechanism seems more variable and its efficiency is, of course, largely a matter of the humidity of the air. There is in all probability some lag in the adjustment to external temperature of the heat production in the skeletal musculature (variations in "tone").

EATING GLASS

To the Editor:—Would the inclusion of ground glass in ingested food be fatal to the individual who took it, or is it possible for the average person to chew up and swallow glass from an electric light bulb without injury, as is said to have occurred in a recent court trial?

M.D., Conn.

ANSWER.—The ingestion of glass may or may not be fatal. The nature and extent of the harm done, if any, depends on the size, shape and number of particles ingested and on the presence or absence of food in the mouth with the glass or in the gastrointestinal tract at the time the glass is swallowed. The danger lies in perforation of the wall of the stomach or the intestine and in acute or subacute gastro-enteritis. It would hardly be safe to say that the average person can chew up and swallow glass without suffering immediate injury, but it seems to be beyond question that some persons can do so. Dr. Walter S. Haines (Death from Pounded Glass and Other Mechanical Irritants, in Legal Medicine and Toxicology, by Many Specialists, ed. 2, vol. II, edited by Frederick Peterson, Walter S. Haines

and Ralph W. Webster, Philadelphia, W. B. Saunders Company, 1923, pp. 888-897) reported a case in which "a professional glass eater," in the presence of Dr. Haines and of Dr. E. F. Ingals, ate half a dozen 6 inch test tubes, two good sized lamp chimneys, an ordinary 4 ounce medicine bottle, two pieces of window glass, each 4 inches square, and three slips of colored glass each 1 inch wide and 3 inches long, biting the glass off the pieces offered him, chewing it up, and swallowing it much as if it had been an ordinary article of food. The glass eater had eaten a hearty meal before submitting to the test, as was his custom before each exhibition. He was kept under observation for several hours after eating the articles named but at no time did he show any unfavorable symptoms. He died, however, two or three years later, from a subacute gastro-enteritis, presumably, Dr. Haines says, from the irritation produced by his long continued glass eating. There are other well authenticated reports of similar purport.

ATTACKS OF ABDOMINAL CRAMPS

To the Editor:—A white man 33 years of age is in comfortable financial and social status and is in a profession that does not require physical activity but does entail great mental strain. He was in his usual state of health until seven years ago, when he sustained a "contusion" right kidney in an automobile accident. For several weeks following the accident he had red cells in the urine, but this cleared up under treatment. From then until three years ago he was well. At this time (three years ago) he began to have bouts of abdominal cramps, generalized and severe. These come on with no regularity and follow no dietary indiscretions, nor do they follow the ingestion of any particular foods, although they have a direct relationship to mental strain and worry. The pains last from eighteen to thirty-six hours and then pass away. At the peak of the pain, sedation is sometimes necessary. The attacks have become more frequent in the last year. He has been examined during the attacks by a competent surgeon who states that no surgical condition is present. The temperature, pulse, respiration and blood pressure are normal even during the attack, although there is a slight rise in blood pressure. The white count and the differential count are normal also. A complete gastrointestinal study including many x-ray plates reveals a retrocecal appendix and evidence of a spastic colon. Proctoscopic and sigmoidoscopic examinations as well as fecal examinations have yielded negative results. Can there be any relationship between the injury and these attacks? Will spastic colitis cause such a history? If we can assume such a diagnosis can you suggest a regimen which will cause relief? If the disease is spastic colitis, can you refer me to some literature on the condition?

M.D., Pennsylvania.

ANSWER.—The present trouble is probably not associated with the injury, although careful x-ray studies with intravenous pyelograms should be done. In a patient of this type functional disturbances of the colon are common and are capable of causing severe abdominal pain. It is unusual, however, for it to appear in isolated attacks, and the bowel function is usually disturbed. Before the diagnosis of spastic colitis is made, duodenal stasis must be considered as well as partial obstruction in the small intestine. These may not be discovered by fluoroscopic study except during the attack. It is also of great importance to note whether the pains are rhythmic. If the examinations fail to reveal any organic trouble, it seems fair to assume that the patient has a functional disturbance. In treatment it is necessary to have the complete confidence of the patient and suitable diet to relieve the spasticity of the colon. The chapter on irritable colon in Oxford Medicine gives valuable information and may be of help in this case.

FOLLICULITIS OF SCALP: DIFFERENTIAL DIAGNOSIS

To the Editor:—I have on several occasions had cases in which small "shotlike" places under the scalp were complained of which later seem to come to the surface and break down, discharging a small amount of pustike fluid. These elevations seem to be found on areas having some hair and seem to "thin" bald spots. There is considerable itching, but outside of that patients do not seem to complain. I have tried painting with iodine, silver nitrate and phenol, and while these substances give relief there are new crops of the elevations at other areas of the scalp. Will you also tell me the etiology of this condition? I have been unable to find it described in the books at my disposal.

M.D., Chicago.

ANSWER.—It is difficult to make an unequivocal diagnosis in this case without more definite information about the character of the individual lesions, the course of events once they appear and the final result of their presence. Several entities come to mind for consideration. Perifolliculitis capitis abscedens et suffodiens is characterized by nodules and abscesses occurring on the scalp and terminating in scars. The nodules may be up to the size of a walnut. They are solid or fluctuant, colorless, yellow or livid. The lesions may be connected by sinuses and are devoid of hair. They exude a thin pus that dries into crusts. X-rays, vaccines and a sulfur paste have been employed with benefit. It is doubtful whether this is the correct diagnosis, because mention is not made of resulting bald spots, nor do the lesions in this patient seem to be large enough, nor do they burrow.

Acne varioliformis or necrotica should be considered. This is characterized by the occurrence over the brow, scalp or other regions of discrete, exceedingly indolent, reddish brown, papulopustular, often umbilicated, lesions which become covered with crusts and eventually leave depressed, superficial scars resembling those of smallpox. There may be few or many lesions. There is commonly a well marked coincident seborrhea. Many of the lesions are traversed by lanugo hairs. The subjective sensations are slight; at times there is itching. The disease tends to recur and is exceedingly chronic in its course. The treatment is with antiseptic lotions or ointments containing ammoniated mercury, resorcinol, sulfur, mercury bichloride and staphylococcus toxoid. Since this entity affects nonhairy portions as well as hairy ones, it may not be the fitting diagnosis in this case.

Acne necrotica miliaris of the scalp, described by Lane and also by Montgomery, is a more likely diagnosis, a folliculitis affecting the scalp of adults. The pustules are minute and usually few. There are rarely more than three or four present at a given time. They are always situated in the hair follicle and are of yellowish tinge. They soon rupture or are scratched and become capped with a crust which is not infrequently hemorrhagic. The disorder is persistent, lasting indefinitely when untreated. It is accompanied by subjective sensations of variable degree. Often the itching is severe.

Some form of folliculitis is undoubtedly present. This probably is on a seborrheic basis. Mercurials such as metaphen 1:25,000 may be used locally even after no lesions remain. Bacteriophage has been used locally with benefit in some cases of folliculitis of the scalp.

LUENBACH-KOEPPE PREGNANCY TEST

To the Editor:—Would you please tell me of what value is the Luenbach-Koeppe test for pregnancy?

Hymel Fishkin, M.D., Creighton, Pa.

ANSWER.—The Visscher-Bowman test has been definitely discarded by even its original proponents. Because of the great difficulty in reading an end point the test must be considered of no great value, and it is recommended that it be not used in the interest of accuracy and scientific medicine. The Luenbach-Koeppe test is definitely a modification of the Visscher-Bowman test and therefore must be considered in the same category.

ULCERATIVE COLITIS AND PREGNANCY

To the Editor:—A woman, aged 36, who has had chronic ulcerative colitis for the past four years, is anxious to have another baby. She has had three normal spontaneous deliveries. The three children are in good health. She has had several complete and thorough work-ups and regimens of treatment by several capable physicians. On one occasion they isolated a specific micro-organism. However, this was never found again. On and off she has had spontaneous periods of relief, and then she would get recurrences. Her medical history is negative and she has no other sicknesses. In the past few months she has been treated by a proctologist for pruritus ani with relief. She is the nervous and active type. Is it advisable for her to become pregnant, and is there any contraindication?

M.D., New York.

ANSWER.—The problem of pregnancy and its association with the diseases known as chronic ulcerative colitis has been discussed in an article on this subject by J. Arnold Bargen, Calixto Jose Nunez and Robert D. Mussey in the *American Journal of Obstetrics and Gynecology* (**38**:146 [July] 1939). While no exact answer can be given to the question because of the fact that no one's experience with this combination of circumstances has been large, these authors have made an attempt to find the answer in a review of the case histories of seventeen women who had eighteen deliveries and four miscarriages. They found that nine of the patients who had active ulcerative colitis were improved after delivery. In five the symptoms of the disease became worse. Three of the patients who had miscarriages were improved. The disease started after delivery of one patient. In three the symptoms were unchanged and in one case after miscarriage the symptoms were unchanged. In general it can be said that the combination of circumstances, namely pregnancy in an individual with ulcerative colitis, while it can become serious, does not present unsurmountable difficulties. Why some should be improved after pregnancy is a question that has not been answered. The fact that some became much worse has led these authors to feel that it is probably best in cases of chronic ulcerative colitis to try to avoid pregnancy. If, however, pregnancy occurs, a number of patients have been carried through an uneventful pregnancy by careful management of the colitis. It would seem reasonable for women who have had the disease and who have become free from symptoms to consider freedom from symptoms for two years as a minimal time before becoming pregnant.

NO LOSS OF LIBIDO FROM HYPERPYREXIA

To the *Editor*:—A man of 45, with long-standing central nervous system syphilis, had to have a series of hyperpyrexia treatments about six months ago for a neuritis. He states that his sexual power diminished abruptly following these treatments, in which the fever was induced by short wave diathermy. He insists that his erections were good and his libido normal prior to the treatments. Is this a common sequel of the short wave treatment or has the treatment probably nothing to do with the lost libido, considering the man's age and affliction?

M.D., California.

ANSWER.—There have been no cases reported in which properly administered fever therapy produced a loss of libido. Patients commonly carry on normal sex activity between their fever treatments. The fact that advancing age and neurosyphilis are both important causes of decreased sex power would seem to be sufficient explanation in this case.

The symptom of neuritis, for which the fever was administered, would suggest that the patient was showing an advance of the process prior to the hyperpyrexia.

CHRONIC CYSTIC MASTITIS

To the *Editor*:—What form of glandular therapy is advocated for adenofibroma of the breast, diffuse and bilateral? This condition has been found in a woman aged 22. Can you tell me what she may expect should she become pregnant? Would the breast which seems to be entirely involved now start to function, or would the condition persist through pregnancy?

Thomas J. Murphy, M.D., Decatur, Ill.

ANSWER.—The diagnosis in this case is probably chronic cystic mastitis, or Schimmelbusch's disease. Generally no treatment is necessary because the only way to cure this condition is to remove the breasts. This surely is inadvisable for a 22 year old woman. In some cases during pregnancy the breasts enlarge considerably and hurt appreciably but in other instances only the physiologic enlargement and engorgement of the breasts take place. These breasts can function during the puerperium, that is secrete milk in spite of the disturbance.

Androgen may be tried. Testosterone propionate in doses of 10 to 25 mg. may be administered intramuscularly three times a week for four weeks. Sometimes there is relief from pain and some improvement in the condition of the breasts. Usually the relief is temporary and lasts only as long as treatment is carried out, but in some cases the relief persists even after all glandular treatment has been stopped.

NASAL SECRETION WHEN EATING

To the *Editor*:—A young man otherwise in good health complains of nasal secretion when eating and when exposed to cold weather. He is embarrassed over the necessity of using a handkerchief frequently. Advice in this problem will be appreciated.

M.D., Massachusetts.

ANSWER.—The symptoms described suggest the possibility of heat and cold sensitivity as a cause of the trouble. Cold sensitivity is more common than heat sensitivity as a cause of allergic symptoms. In many cases, however, this type of reaction to thermal changes is secondary to or associated with a true atopy to inhalants, foods or drugs. It would be advisable to investigate such a case completely from this point of view, including adequate tests for thermal sensitivity. Such tests will be found in any of the recent textbooks dealing with allergy.

ANTIANEMIC POTENCY OF LIVER AND AGE OF ANIMAL

To the *Editor*:—Is there any difference in the antianemic activity of the livers of young and adult animals? It would seem to me that the liver of adult animals that have had green fodder would be better for the patient than that of the milk fed young. I would appreciate this information, as the price of the two types of liver here is quite an economic factor with many people.

M.D., California.

ANSWER.—The antianemic activity of livers can be satisfactorily assayed only on patients with pernicious anemia and the errors of the method are considerable. No convincing reports have been found that the antianemic activity of the livers of young animals is superior to that of adult animals.

DIPHTHERIA IMMUNIZATION

To the *Editor*:—What kind of diphtheria inoculation is recommended for mass immunization of school children today? The literature is contradictory and confusing.

M.D., Montana.

ANSWER.—Three doses of plain diphtheria toxoid, 1 cc. each, injected subcutaneously three weeks apart is regarded as an efficient method for active immunization against diphtheria. Sometimes 0.5 cc. is given for the first dose.

Diphtheria toxoid, alum precipitated, in two doses of 1 cc. each injected subcutaneously with an interval of four weeks is given preference by some. Advantages in using this preparation are that (1) only two doses are injected and (2) in a certain proportion of individuals a single dose establishes immunity. Therefore if there is failure, for any reason, to complete the two dose treatment a number of those who received this first injection will probably be immunized. The alum tends to retard rapid absorption of the toxoid and consequently the antigenic response is more prolonged than when plain toxoid is administered.

The choice of procedure for mass protection of school children against diphtheria is usually determined by the department of health or the health officer.

SULFANILAMIDE FOR TYPHOID CARRIERS

To the *Editor*:—In Queries and Minor Notes (The Journal, Oct. 14, 1939, p. 1310) you discuss the use of sulfanilamide in the control of the typhoid carrier state and remark that the only reference in the literature up to this time seems to be the article of Bazin (Canad. M. A. J. 38:1 339 [June] 1938), who employed sulfanilamide for a biliary paratyphoid carrier. In view of the lack of published reports on the use of the drug in the typhoid carrier state, I should like to place on record the following observation:

The carrier studied was a woman aged 58, who in 1901 suffered an illness resembling typhoid, although it was not diagnosed as such at that time. From 1901 to 1936 she was employed at times as cook, nursemaid and general housekeeper, and during this period at least three cases of typhoid are believed attributable to her. In 1936, on application for the position of cook in a large tuberculosis hospital, fecal specimens were secured from her, from which typhoid bacilli were cultured. Typhoid bacilli having also been demonstrated in specimens of bile aspirated from the duodenum, the carrier underwent cholecystectomy in 1936 in the hope of being cured of the carrier condition. The removal of a chronically inflamed gallbladder containing stones, and the appendix, both of which yielded typhoid bacilli on culture, failed to relieve the carrier condition. Subsequent positive cultures of duodenal contents, as well as feces, suggested that the infection was located in the biliary tract.

Through the courtesy of Dr. William S. McCann, who undertook the medical supervision of the case, the carrier was admitted to the medical service of Strong Memorial Hospital, Rochester, N. Y., in March 1939 for treatment with sulfanilamide in an attempt to cure the carrier condition. The treatment and results are summarized in the accompanying table.

Observation Prior to, During and After the Administration of Sulfanilamide to a Chronic Biliary Typhoid Carrier

Date	Sulfanilamide Administered Orally, Gm.	Blood Level of Sulfanilamide, Mg. per 100 Cc.	Blood Studies: Red Cells, Millions	Blood Studies: Hemoglobin, Gm.	Blood Studies: White Cells	Cultures for B. Typhosus: Bile	Cultures for B. Typhosus: Feces	Comment
1936	..	....	....	...	.....	+	+	
1937	..	....	....	....	.....	..	+	
1938	..	....	....	....	.....	..	+	
3/ 6/39	..	....	4.36	12.6	7,050	..	+	Admitted to the hospital
3/ 8/39	..	....	....	....	.....	..	+	
3/ 9/39	..	....	....	....	.....	+	+	
3/10/39	8	....	....	....	.....	+	+	
3/11/39	8	....	....	12.8	8,550	..	+	
3/12/39	6	....	....	....	.....	..	+	
3/13/39	6	9.5	....	....	.....	..	+	
3/14/39	6	....	....	....	.....	..	+	
3/15/39	6	10.0	....	11.5	5,000	..	+	
3/16/39	5	....	....	....	.....	..	+	
3/17/39	5	....	....	....	.....	..	+	
3/18/39	..	7.3	....	12.0	5,500	+	+	
3/19/39	..	....	....	....	.....	..	..	Maculopapular rash, left cheek
3/20/39	..	....	....	....	.....	+	..	Discharged from hospital
5/ 8/39	..	....	....	....	.....	..	+	
5/ 9/39	..	....	....	....	.....	..	+	
5/10/39	..	....	....	....	.....	..	+	

The drug seems to have been tolerated well, the only untoward effect being the development of reddish maculopapular lesions on the left cheek March 19; these disappeared in a few days. The adequacy of the dosage may best be judged by reference to the sulfanilamide blood levels, which suggest that a concentration of approximately 10 mg. per hundred cubic centimeters was maintained for several days. The bacteriologic examinations show that typhoid bacilli did not disappear from the duodenal contents or feces during or following treatment with sulfanilamide. Perhaps other individuals might prove more responsive, or perhaps more intensive treatment with sulfanilamide would produce the desired effect. The typhoid carrier state is sufficiently important to carriers and to health officials to warrant continued research into the possibility of medical cure.

Paul A. Lambeke, M.D., Albany, N. Y.
Epidemiologist, New York State Department of Health.

Medical Examinations and Licensure

COMING EXAMINATIONS

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examination of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, December 16, page 2261.

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 18-20. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ALASKA: Juneau, March 5. Sec., Dr. W. W. Council, Box 561, Juneau.

ARIZONA: Phoenix, Jan. 2-3. Sec., Dr. J. H. Patterson, 826 Security Building, Phoenix.

ARKANSAS: *Basic Science.* May or June. Sec., Mr. Louis E. Gebauer, 701 Main St., Little Rock. *Medical.* Little Rock, June 6-7. Sec., Dr. D. L. Owens, Harrison.

CALIFORNIA: *Oral examination* (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), Los Angeles, Jan. 17. *Written examination.* Los Angeles, Feb. 26-29. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: *Endorsement.* Denver, Jan. 2. *Examination.* Denver, Jan. 3-5. Sec., Dr. Harvey W. Snyder, 831 Republic Bldg., Denver.

CONNECTICUT: *Basic Science.* New Haven, Feb. 10. Chairman, Dr. Charles M. Bakewell, State Board of Healing Arts, 1895 Yale Station, New Haven. *Medical.* Hartford, March 12-13. Sec., Dr. T. P. Murdock, 147 W. Main St., Meriden. *Homeopathic.* Derby, March 12-13. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

DELAWARE: *Examination.* Dover, July 9-11. *Reciprocity.* Dover, July 16. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, April 22-23. *Medical.* Washington, May 13-14. Sec., Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Tampa, June 17-18. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA: Atlanta, June. Joint Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

IDAHO: Boise, April 2. Dir., Bureau of Occupational Licenses, Mr. H. R. Whittlesey, 333 State Capitol Bldg., Boise.

ILLINOIS: Chicago, Jan. 23-25. Acting Superintendent of Registration, Mr. Lucien A. File, Springfield.

INDIANA: Indianapolis, June 18-20. Sec., Board of Medical Registration and Examination, Dr. J. W. Bowers, 301 State House, Indianapolis.

IOWA: *Basic Science.* Des Moines, Jan. 9. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, State Department of Health, Capitol Bldg., Des Moines.

MICHIGAN: Ann Arbor and Detroit, June 12-14. Sec., Dr. J. Earl McIntyre, 202-4 Hollister Bldg., Lansing.

MINNESOTA: *Basic Science.* Minneapolis, Jan. 2-3. Sec., Dr. J. C. McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, Jan. 16-18. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MISSISSIPPI: *Reciprocity.* Jackson, December. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MONTANA: *Reciprocity.* Helena, April 1. *Examination.* Helena, April 2-3. Sec., Dr. S. A. Cooney, 216 Power Block, Helena.

NEBRASKA: *Basic Science.* Omaha, Jan. 9-10. *Applications must be on file not later than Dec. 26.* Dir., Bureau of Examining Boards, Mrs. Clark Perkins, 1009 State Capitol Bldg., Lincoln.

NEVADA: *Reciprocity with oral examination.* Carson City, Feb. 5. Sec., Dr. Frederick M. Anderson, 215 N. Carson St., Carson City.

NEW HAMPSHIRE: Concord, March 14-15. Sec., Dr. T. P. Burroughs, State House, Concord.

NEW JERSEY: Trenton, June 18-19. Sec., Dr. Earl S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, April 8-9. Sec., Dr. Le Grand Ward, 135 Sena Plaza, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, Jan. 29-Feb. 1. Chief, Bureau of Professional Examinations, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

NORTH DAKOTA: Grand Forks, Jan. 2-5. Sec., Dr. G. M. Williamson, 415 S. Third St., Grand Forks.

OREGON: *Basic Science.* Portland, Feb. 24. *Applications must be on file not later than Feb. 7.* Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: *Written.* Philadelphia, Jan. 2-4. *Bedside.* Philadelphia, Jan. 5-6. Dir., Bureau of Professional Licensing, Dr. James A. Newpher, Department of Public Instruction, 358 Education Bldg., Harrisburg.

PUERTO RICO: Santurce, March 5. Sec., Dr. O. Costa Mandry, Box 3854, Santurce.

RHODE ISLAND: Providence, Jan. 4-5. Sec., Dr. Robert M. Lord, 366 State Office Bldg., Providence.

SOUTH DAKOTA: Pierre, Jan. 16-17. Dir., Medical Licensure, Dr. G. J. Van Heuvelen, State Board of Health, Pierre.

TEXAS: June 20-22. Sec., Dr. T. J. Crowe, 918-20 Mercantile Bldg., Dallas.

VERMONT: Burlington, Feb. 13-15. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

WASHINGTON: *Basic Science.* Seattle, Jan. 11-12. *Medical.* Seattle, Jan. 15-17. Acting Dir., Mr. Dave S. Cohn, Olympia.

WISCONSIN: Madison, Jan. 9-11. Sec., Dr. E. C. Murphy, 314 E. Grand Ave., Eau Claire.

WYOMING: Cheyenne, Feb. 5. Sec., Dr. M. C. Keith, Capitol Bldg., Cheyenne.

Iowa June Examination

Mr. H. W. Grefe, director, Iowa State Board of Medical Examiners, reports the written examination held at Iowa City, June 6-8, 1939. The examination covered eight subjects and included 100 questions. An average of 75 per cent was required to pass. Ninety-seven candidates were examined, ninety-five of whom passed and two failed. The following schools were represented:

School	PASSED Year Grad.	Per Cent
Rush Medical College	(1937) 79.6, 90.4, (1939)*	84.5
State University of Iowa College of Medicine	(1938) 82.1, 84.3, (1939)* 77.9, 79.6, 80.3, 80.5, 80.8, 80.9, 81.3, 82, 82.3, 82.3, 82.3, 82.4, 82.4, 82.4, 83.4, 83.6, 83.8, 84, 84, 84, 84.1, 84.5, 84.6, 84.6, 84.6, 84.6, 84.8, 84.8, 85.1, 85.3, 85.3, 85.4, 85.5, 85.5, 85.5, 85.8, 85.9, 85.9, 85.9, 85.9, 85.9, 86, 86.1, 86.3, 86.4, 86.6, 86.6, 86.8, 86.8, 87, 87, 87.1, 87.4, 87.4, 87.4, 87.5, 87.5, 87.8, 87.9, 88.1, 88.1, 88.1, 88.4, 88.4, 88.4, 88.5, 88.6, 88.9, 89.1, 89.1, 89.3, 89.4, 89.8, 89.8, 89.9, 89.9, 90, 90.3, 90.3, 90.3, 90.4, 90.4, 91.5, 91.6, 91.9	76.1
Creighton University School of Medicine	(1937) 89.1, (1938)	92.6
Medizinische Fakultät der Universität Wien	(1917)* 77, (1935)	81.4

School	FAILED Year Grad.	Number Failed
State University of Iowa College of Medicine	(1939)	1
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin	(1936)	1

* Licenses withheld pending completion of internship.

New Mexico Endorsement Report

Dr. Le Grand Ward, secretary, New Mexico Board of Medical Examiners, reports twenty-six physicians licensed by endorsement October 10. The following schools were represented:

School	LICENSED BY ENDORSEMENT Year Grad.	Endorsement of
College of Medical Evangelists	(1939)	N. B. M. Ex.
Stanford University School of Medicine	(1936)	California
University of California Medical School	(1922)	California
University of Colorado School of Medicine (1938) N. B. M. Ex.	(1911)	Colorado,
Yale University School of Medicine	(1921)	New York
George Washington University School of Medicine	(1933)	Maryland
Northwestern University Medical School	(1937)	Colorado
Rush Medical College	(1926)	Illinois, (1932) New York
State University of Iowa College of Medicine	(1937)	Iowa
University of Kansas School of Medicine	(1920)	Kansas
University of Louisville Medical Department	(1913)	Oklahoma
Washington University School of Medicine	(1927)	New York
University of Nebraska College of Medicine	(1938)	Nebraska
University of Oklahoma School of Medicine	(1931), (1933)	Oklahoma
Jefferson Medical College of Philadelphia	(1918)	Penna.
Baylor Univ. College of Medicine	(1930), (1937), (1938)	Texas
University of Texas School of Medicine	(1927), (1937, 2)	Texas
University of Bristol Faculty of Medicine	(1934)	New Jersey
Université de Genève Faculté de Médecine	(1935)	New York

Tennessee September Examination

Dr. H. W. Qualls, secretary, Tennessee State Board of Medical Examiners, reports the written examination held at Memphis, Sept. 27-28, 1939. The examination covered ten subjects and included 100 questions. An average of 75 per cent was required to pass. Twenty-one candidates were examined, all of whom passed. The following schools were represented:

School	PASSED Year Grad.	Per Cent
Wayne University College of Medicine	(1939)	87.5
St. Louis University School of Medicine	(1939)	84.1
University of Tennessee College of Medicine	(1939) 82.1, 82.9, 83, 83.5, 83.6, 83.8, 84.1 84.4, 84.6, 85.3, 85.9, 86, 86.4, 86.8, 86.8, 87.4, 89.3, 90.1	78.1,

Colorado October Examination

Dr. Harvey W. Snyder, secretary, Colorado State Board of Medical Examiners, reports the written examination held at Denver, Oct. 4-6, 1939. The examination covered eight subjects and included sixty questions. An average of 75 per cent was required to pass. Ten candidates were examined, all of whom passed. The following schools were represented:

School	PASSED Year Grad.	Per Cent
Rush Medical College	(1938) 84.5, (1939) 85, 87	
Osteopaths*	75, 77, 78, 78.5, 80, 81, 82	

* Licensed to practice medicine and surgery.

Book Notices

Pulmonary Tuberculosis in Adults and Children. By James Alexander Miller, A.M., M.D., D.P.H., Professor of Clinical Medicine, College of Physicians and Surgeons, Columbia University, New York, and Arvid Wallgren, M.D., Head of the Children's Hospital, Gothenburg, Sweden. Cloth. Price, $3.50. Pp. 193, with illustrations. New York & Edinburgh: Thomas Nelson & Sons, 1939.

As pointed out in both prefaces of this book, the work is a "fusion" of two monographs, each of which was prepared for a current system of medicine. Naturally, there are imperfections in such an artificial union. Repetitious statements, slight incongruities and lack of liaison are therefore more or less unavoidable, irrespective of the recognized ability and standing of both authors. Perhaps the most important incongruity is that the "cart is before the horse" when the "adult part" is placed ahead of that devoted to "tuberculosis of childhood."

Taking up Dr. Wallgren's part first (the logical order) there is little to say in a way of criticism and much to praise in the clinical field. It represents largely an essence of his own numerous studies. With regard to morbidity he tends to emphasize his own observations—an incidence of about 80 per cent infection by 20 years of age—but does not mention the fact that certain sections of the world have a much lower incidence. The mortality is highest in the first year (5 per thousand) and decreases to 2 per thousand for the second year and then less and less each year until between 9 and 12 years it is 0.5 per thousand with a slight rise again in puberty. The type of microorganism, the modes and routes of infection, and portals of entry are described correctly and clearly. A point not commonly appreciated is that an incubation period exists from three to nine weeks, with a majority between four and six weeks. A conservative position is taken with regard to the relation of allergy and immunity. Although they are usually linked together, "tuberculin sensitivity is not in all cases a proof of the existence of immunity and the absence of tuberculin sensitivity is not in all cases evidence of the absence of a specific acquired immunity." He is emphatic with regard to the protection afforded by an infection to subsequent superinfections and reinfections.

The tuberculin reaction (with methods and types) is well covered. The author points out that a positive reaction represents the presence of an infection and that the reaction may diminish or disappear in malignant forms of the disease, in certain associated diseases, during the incubation period of primary tuberculous infection and on rare occasions when no cause can be found.

In the primary infection attention is directed to an important feature, the "initial fever" beginning at the appearance of allergy and lasting one or two weeks. It may rise to from 39 to 40 C. (102.2 to 104 F.). While other workers claim only about 30 per cent of such "invasion fevers," he finds it more frequently.

Erythema nodosum is considered as a nonspecific effect of tuberculosis (and more rarely other conditions) but the fever that accompanies erythema nodosum is like the fever that usually follows the primary tuberculous infection. When fever is present under such circumstances, it is a part of the initial fever.

Other symptoms of first infection are drowsiness, fatigue, headache, expiratory stridor and "bitonal cough." The latter is usually due to pressure of lymph nodes on bronchi. The patients usually lose appetite and weight and become anemic. There is almost a complete absence of physical signs and almost a universal presence of x-ray shadows of lesions either in the parenchyma or in the lymph nodes. The sedimentation reaction is recommended as a sensitive indicator to control progress. Bacilli are found in the stomach contents of 78.6 per cent of infants and about 50 per cent of older children having tuberculosis, and the more recent the infection the higher the percentage of bacilli. The lesions begin as a nonspecific pneumonia, then a specific infiltration, and then encapsulation, caseation and calcification follow in turn. Calcification begins at about a year and continues for many years. The lesion gradually shrinks for many years, some lesions disappearing altogether.

The Ranke classification of tuberculosis according to three stages (which both authors have adopted), although it has many attractive features, is not accepted by everybody and is not used by the Diagnostic Standards Committee of the National Tuberculosis Association. For the first stage of Ranke with the primary complex and secondary hematogenous dissemination, most pathologists will agree. But when the "secondary tuberculosis" following the primary is placed in the same category with a late miliary tuberculosis or "protracted multiform miliary tuberculosis" or following an "exogenous infection" it doesn't make for simplification—the only real motive for the use of such a classification in the absence of the real facts. There are many controversial points. In the last analysis it resolves itself into a question of whether the lesions are encapsulated (secondary) or become open (tertiary) into some of the bronchial, gastrointestinal or urinary channels. Thus far, however, there is no anatomic basis for distinguishing between the two, outside of a communication or lack of it, with the exterior through these main channels. It is an attempt to explain too many phenomena by one method of classification. There hasn't yet appeared a logical system or classification that will adequately explain all immunologic and pathologic phenomena at one time, let alone the attendant clinical phenomena.

The author's handling of diagnosis, prognosis and treatment reveals the touch of one who knows his field. He recommends rest treatment during the fever stage and until the sedimentation becomes normal. It is usually from four to six weeks after the fever has subsided. The child should then be allowed up for short intervals and gradually return to normal and school work; all the while the temperature and sedimentation rate are watched. The question of hospitalization is not only medical but also a social problem. Primary tuberculosis does not necessarily need hospitalization, but if the home conditions are poor it is indicated. Children who have benign lesions without cough may be treated as noninfectious. Children with ulcerative lesions should be treated as any other patient with open tuberculosis.

Dr. Miller's part of the book is well presented as to the text, but the reproductions of pathologic conditions are indistinct and many of the x-ray reproductions do not show the changes at all. Furthermore, they do not harmonize with those in the second part. Both should have been either positive or negative. The paragraphs on infection, allergy, immunity, pathogenesis and prevention are well done, but there is no need for two different descriptions under one cover, with varying emphasis here and there but in general paralleling each other.

The development of an immunity as a result of allergy is rationally presented as well as the dangers of a hyperallergy with large dosage. The attempt to visualize the disease as an evolutionary pathogenic process is also to be commended, but as with Dr. Wallgren's part there is a question whether the classification of tuberculosis into three stages is as simple as it is intended to be.

The tendency to reject the term "reinfection type" in the sense that an exogenous reinfection is more important than an endogenous progression is justified, but there does not seem to be any need for calling it "second and third stages."

From a clinical standpoint the three groups primary, prephthisical and phthisical is a firm step in an attempt to correlate pathologic, x-ray and clinical observations and is perhaps better than any grouping yet proposed, although not free from objections.

The rest of the work is about as well presented as could be condensed into such a chapter in a system of medicine. The symptoms, modern methods of following subclinical phases (red cell sedimentation, leukocytic index, stomach lavage) are down to date. The physical manifestations, clinical course, diagnosis, differential diagnosis, complications, prognosis and treatment are all drawn along a modernization of classic concepts in an excellent manner. The author points out the limitations of physical examination and the importance of the x-rays, but unfortunately does not give all the important features of x-ray appearance of early lesions, nor does he show many simple lesions so important for beginners. This is more or less excusable, however, because of a lack of space. The surgical methods are brief but well presented. The part on prevention, overlapping considerably with Dr. Wallgren's part, includes education, pasteurization of milk, clinics, preventoriums, public health nursing, hospitals, sanatoriums, surveys, rehabilitation centers and vaccination. Lastly there is emphasized the important fact that the general practitioner is in the driver's seat in finding

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tuberculosis and should be made to realize his importance and at the same time be instructed in the modern means of case finding.

In spite of the imperfections, this "hybrid" textbook possesses genuine value, is interesting and easy to read, and is perhaps as good as any similar work in the English language today. It is especially to be recommended for students of tuberculosis.

Atlas clinique d'ophtalmoscopie photographique: Syndromes cliniques du fond de l'œil. (Clinical Atlas of Fundus Photographies.) Par Henri Tillé, médecin-chef du laboratoire d'ophtalmologie, et A. Couadau, correspondant national de la Société d'ophtalmologie de Paris. Cloth. Price, 280 francs. Pp. 193, with 202 illustrations. Paris: Masson & Cie 1939.

For the past ten years the authors have been collecting photographs of the fundus of the eye. From their collection of 2,000, 202 were selected for publication. The preface, written by Mawas, fails to give credit to many of those most actively engaged in the field of fundus photography. This volume, the third photographic atlas to be published in the world, must necessarily be subjected to comparison with the previous two, the one by Dimmer and Pillat and the other by Bedell. In the former the reproductions are excellent and show no disfiguring arc image, while the second consists of the actual photographs and includes a great number of stereoscopic illustrations with the arc image. In the atlas under discussion there are black carbon spots. Some of these are so small as to suggest artefacts. The volume is logically arranged into the normal fundi, traumatic changes in the choroid, retina and optic nerve, inflammations of the optic nerve, inflammatory changes in the choroid and retina, congenital alterations, degenerations of the retina, degenerations of the macular area, changes in myopia, separation of the retina, hypertensive disease, diabetic changes, detachment of the retina, angioid streaks, blood states, cyanosis, intracranial pressure and tumors. The concise clinical descriptions aid the student in appreciating the fundus changes; in fact, without them diagnosis would often be impossible, for the authors write into the pictures things that are not in the prints. Several of the illustrations are noteworthy. These include some macular changes, especially the one called gliosis, myopic fundi, retinal folds, albuminuric retinitis, diabetic retinitis, and that which the authors call "stase papillaire," commonly referred to in English literature as papilledema, or choked disk. Attention is especially drawn to the illustrations of von Hippel's disease, which are among the finest ever published. The volume reflects credit on the authors for their technical skill, their selection of cases and the beautiful way in which these have been presented. It is recommended to all students of clinical ophthalmoscopy, for, although it is written in French, an English diagnosis is printed beneath each picture. The publishers have used clean type and a high grade of paper.

Arbeit und Gesundheit: Sozialmedizinische Schriftenreihe aus dem Gebiete des Reichsarbeitsministeriums. Herausgegeben von Professor Dr. Martineck, Ministerialdirigent im Reichsarbeitsministerium. Heft 36: Die Endangiitis obliterans. Von Dr. Hanskarl von Hasselbach, Oberarzt der Chirurgischen Universitätsklinik München. Paper. Price, 6.70 marks. Pp. 168, with one illustration. Leipzig: Georg Thieme, 1939.

This monograph on Buerger's disease is interesting for the American reader for two reasons. In the first place it contains an excellent review of the literature on the subject, although obviously the English and American papers must have been read in abstract because their subject matter is often misquoted. Second, it contains for the first time an attempt to evaluate service connected disability on the basis of 193 cases, the files of which the author received from the Military Compensation Board. The difficulties of passing judgment in cases which the author did not have an opportunity to examine are obvious. Nevertheless, interesting case histories are presented. In the opinion of the author, prolonged exposure to cold or trauma may act as sensitizing factors for a person whose vascular tree is already hypersensitive to injury. With this working hypothesis in mind he presents a vague and indecisive outline as to how to evaluate disability from Buerger's disease in its relation to military service. He acknowledges liability if the disease occurs for the first time during active service or shortly after the completion of active service, including all late sequelae and recurrences. Nothing new is offered in the line of treatment. If anything the monograph depicts our present ignorance of the etiology and logical treatment of the disease.

Public Speaking for Technical Men. By S. Marion Tucker. Cloth. Price, $3. Pp. 397. New York & London: McGraw-Hill Book Company, Inc., 1939.

Now that there are innumerable scientific societies in every branch of scientific learning which hold regular meetings at which topics are freely discussed, it becomes almost incumbent on the scientist who wishes to make progress in his field to be able to present his work suitably to his colleagues, to defend his thesis in open discussion—in a word, to understand how to influence people. This does not depreciate in any way the scientific value of his work; it merely recognizes the fact that elucidation is necessary for comprehension.

There are, however, many aspects in a scientific presentation which are quite separate from presentation before other bodies. The book by S. Marion Tucker gives a great deal of useful information and advice but unfortunately includes a mass of irrelevant data planned primarily to make the book readable. There is much discussion on the proper use of the voice, on the appearance on the public platform, on the use of vocabulary, on a study of the audience and on similar topics. Because of the technic of presentation of this book it is twice too long, much too long indeed for the amount of time that the average scientist would be willing to give to a work of this character. In certain aspects of the subject there is some doubt as to the author's capacity to recommend. This applies particularly to the use of humor. There are few, if any, occasions when humor is needed before a technical audience by a technical speaker. If there is such an occasion, it must be quite spontaneous and apropos. The story of "Pat and Mike" for the purpose simply will not do. There is no audience that can be so coldly silent and disapproving as a technical audience which happens to feel that the speaker is not taking with sufficient seriousness the problem of the day.

Gynecologic Operations and Their Topographic-Anatomic Fundamentals. By Prof. Dr. Med. Heinrich Martius, Director of the University Womens Clinic, Göttingen. Authorized English translation under the editorial supervision of W. A. Newman Dorland, A.M., M.D., F.A.C.S., Diplomate of the American Board of Obstetrics and Gynecology. Cloth. Price, $10. Pp. 486, with 404 illustrations. Chicago: S. B. Debour, Publishers, 1939.

This is an English translation of what has been considered the best book of its type. In translating Martius into English, nothing has been lost, the text having become more understandable for the average American. The drawings, diagrams, anatomic sketches and technical details are exactly the same as in the German original, with nothing having been omitted. A study of this book will make one familiar with the surgical anatomy, relations and technic for all gynecologic procedures. The operative work is described from the incision of the skin to closure. Particularly interesting is the study of the operations for repair of relaxations of the urethral sphincter and for the repairs of fistulas. All in all, this is the best textbook of gynecologic surgical technic that it has been the fortune of the reviewer to study. It is a book that should be in the hands of all serious students of gynecology as well as the occasional pelvic operator.

The Treatment of Rheumatism in General Practice. By W. S. C. Copeman, M.A., M.D., B.Ch., Physician in Charge, Dept. of Chronic Rheumatic Diseases, West London Hospital, London. Third edition. Cloth. Price, $4. Pp. 276. Baltimore: William Wood & Company, 1939.

A chapter on gout, one on focal sepsis and details of new methods of treatment have been added to this edition. The reviewer, however, is unable to share the enthusiasm expressed by others for the book. It is notably lacking in that critical discrimination between modes of treatment which is so highly desirable at the present time. A considerable number of proprietary remedies is recommended, some of them fortunately practically unknown in this country, including Kia-uma, Amysal, Balmosa, Aspriodine, Alasil and Kalmopyrin. A chapter is devoted to colonic therapy, with no new evidence added as to its efficacy, if any. There is also a chapter on osteopathy and "nature cures" in which, as in previous editions, osteopathy is far too favorably considered. The author would do well to consult the report of the select committee of the house of lords on the Osteopaths Bill in 1935 in his own country. Although there is a definite need for a volume on therapy for the general practitioner, the hope that this one would be developed along sound lines has not been fulfilled.

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Les occlusions artérielles aiguës des membres: Formes cliniques, indications, physiopathologiques et thérapeutiques. Par H. Halmovici, assistant à la Faculté de médecine de Marseille, Marseille. Préface du Pr J. Piolle. Paper. Price, 26 francs. Pp. 124. Paris: Masson & Cie, 1939.

As one of a group of surgical and medical monographs written as a review and instruction for the general practitioner, the author describes the acute arterial occlusions in general, the perversions of physiology, the symptoms, various clinical forms, the diagnosis, prognosis and treatment. This review is entirely up to date and its main conclusions can only be reemphasized; namely, the difficulty of differentiation between arterial embolism and thrombosis; the utmost urgency in the treatment of arterial occlusion; the transportation of all such cases to surgical centers, where experienced surgical help can be secured; the place of antispasmodics, procaine hydrochloride block, sympathectomy, embolectomy, arteriectomy and amputation in the various stages of arterial embolism. The presentation is brief, concise and quite didactic. The American reader would welcome a few illustrations and case reports. The teaching value of this monograph to students and the general practitioner is unquestionable.

The Natural History of Population. By Raymond Pearl. University of London Heath Clark Lectures 1937. Delivered at the London School of Hygiene and Tropical Medicine. Cloth. Price, $3.50. Pp. 416, with 40 illustrations. New York: Oxford University Press, 1939.

In this book the author has collected and summarized the results of his studies of human reproduction and fertility as gathered over a long period of years, and their apparent effects on world population. Altogether the factual data are impressive, but the author also has not hesitated to express his personal views of the significance and implications of the observed facts. Regardless of the ultimate corroboration or disproval of Pearl's excursions into speculation, the facts presented alone are of great importance. This book may be considered as required reading for those who wish to speak authoritatively on problems of human reproductivity and population trends.

Maternal Care and Some Complications: The Principles of Antepartum, Intrapartum, and Postpartum Care and of the Management of Some Serious Complications. Approved by the American Committee on Maternal Welfare, Inc. Prepared by W. C. Danforth, M.D., et al. F. L. Adair, M.D., editor. Cloth. Price, $1.50. Pp. 194. Chicago, Illinois: University of Chicago Press, 1939.

This book is a combination of two books previously published under the names "Maternal Care" and "Maternal Care Complications." These books have been reviewed in THE JOURNAL (Oct. 16, 1937, p. 1301, and Oct. 1, 1938, p. 1322). It is worth emphasizing that if most general practitioners of this country would acquaint themselves with the contents of this book there would be a marked improvement in antepartum, intrapartum and postpartum care, with a consequent sudden and dramatic decrease in the maternal and fetal mortality and morbidity.

Diseases of the Ear, Nose and Throat: Principles and Practice of Otorhinolaryngology. By Francis L. Lederer, B.Sc., M.D., F.A.C.S., Professor and Head of the Department of Laryngology, Rhinology and Otology, University of Illinois College of Medicine, Chicago. Second edition. Cloth. Price, $10. Pp. 840, with 781 illustrations. Philadelphia: F. A. Davis Company, 1939.

The first edition of this volume appeared last year. Now appears a revised edition with numerous corrections and additions, particularly in the field of anatomy and in the illustrative material. The work continues to be an exceedingly practical and useful volume, especially for medical students.

Nutrition and Diet in Health and Disease. By James S. McLester, M.D., Professor of Medicine, University of Alabama, Birmingham. Third edition. Cloth. Price, $6. Pp. 838. Philadelphia & London: W. B. Saunders Company, 1939.

This is the third edition of the book, which appeared first in 1927 and was reprinted in 1931. The present volume has been entirely rewritten and newly printed. An occasional paragraph from the earlier editions has been retained. The present volume places most of its emphasis on physiology. There have been added a chapter on the feeding of infants written by Dr. P. C. Jeans and one on feeding of the surgical patient by Dr. Dean Lewis. Here is a scientific and practical work on nutrition, discussing each of the dietary constituents fully, concerning necessary normal nutrition, and finally devoting a chapter to the various nutritional diseases as they affect special organs or systems of the body. A large appendix provides tabular data quite complete. In the individual chapters there are numerous menus and other information of great practical value in the development of dietary advice in the practice of medicine.

Attaining Womanhood: A Doctor Talks to Girls About Sex. By George W. Corner, M.D., Professor of Anatomy, The University of Rochester School of Medicine and Dentistry, Rochester, N. Y. Cloth. Price, $1. Pp. 92, with 13 illustrations. New York & London: Harper & Brothers, 1939.

This is a companion volume to the author's book entitled "Attaining Manhood," recently published. It provides a brief discussion of the human reproductive system and the reproductive cycle, followed by considerations of sex attraction and sex conduct. It is a book which will be found somewhat advanced for younger girls but which will, at the same time, be exceedingly useful for parents who wish to discuss these matters suitably with their children.

A List of Schools of Nursing Meeting Minimum Requirements Set by Law in the Various States. [Correct to January 1, 1939.] Paper. Price, $1.75. Pp. 34. New York: National League of Nursing Education, 1939.

This is the first complete list of schools which has been published since 1935. It includes most of the information about individual schools which appeared in the previous edition and contains also data about the type of hospital in which the school is located and other pertinent items concerning the work of the school.

Diseases of the Foot. By Emil D. W. Hauser, M.S., M.D., Assistant Professor of Bone and Joint Surgery, Northwestern University Medical School, Chicago. With a foreword by Sumner L. Koch, M.D. Cloth. Price, $6. Pp. 472, with 263 illustrations. Philadelphia & London: W. B. Saunders Company, 1939.

This book on the foot is mostly concerned with the practical aspects of the care of the feet, including hygiene as well as the various diseases and deformities from which human beings suffer. The illustrations, which are numerous, add greatly to the value of the text, which is simple and direct. The author reflects here considerable experience both in this country and abroad, covering more than 2,000 cases seen in the author's private practice. While the volume is entitled "Diseases of the Foot," it is concerned equally with fractures and dislocations involving the foot and ankle. The work is one of the best monographs available on the subject with which it is concerned.

Diseases of the Skin. By Richard L. Sutton, M.D., Sc.D., LL.D., Professor of Dermatology, University of Kansas School of Medicine, Kansas City, and Richard L. Sutton Jr., A.M., M.D., L.R.C.P., Associate in Dermatology, University of Kansas School of Medicine. Tenth edition. Cloth. Price, $15. Pp. 1349, with 1473 illustrations. St. Louis: C. V. Mosby Company, 1939.

The tenth edition of Sutton's well established textbook appears four years after the previous edition. The progress in dermatology in the intervening period has been considerable. Not only from the point of view of description of new entities but also from the establishment of new concepts, the various chapters of the book appear to include these discoveries. Moreover, there are ten color plates and 340 new illustrations. The authors point out that there have been a 100 per cent increment in the number of words and at least 7,000 bibliographic entries since the ninth edition. The book is marked by the authors' own opinions and observations. There are an excellent chapter on serologic diagnosis of syphilis and new material on the identification of the fungi. In their work the authors have consulted many other leaders in the field, so that this volume now constitutes one of the most timely, dependable works in the field that it concerns.

La recherche de la paternité par les groupes sanguins: Étude technique et juridique. Par Louis Christiaens. Préface du Pr Leclercq. Paper. Price, 26 francs. Pp. 108. Paris: Masson & Cie, 1939.

As the title indicates, this small volume is not another presentation covering the entire field of blood groups and other individual blood differences but is concerned principally with the application of blood tests for disputed parentage. Emphasis is placed on the legal aspects in civil and criminal court actions and on the standing of the matter in various countries, statistics being given on the number of court trials in which blood tests were introduced as evidence. Of interest is the discussion of

the possibility of applying Schiff's discovery that the appearance of group specific substances in secretions is governed by a single pair of genes. Also the tabulation of special cases in which conclusions can be drawn as to a child's parentage from the examination of the grandparents deserves mentioning. The book will serve less as a guide to medicolegal experts than to physicians and members of the legal profession, for whom it will provide informative reading. A few obvious errors in the formulas of table VII (lines 1 and 3), table IX (line 1) and in the last line of table X should be corrected.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Pharmacists: Liability for Substitution in Compounding Prescription.—In May 1936, in the course of treatment in the Wisconsin General Hospital at Madison, the plaintiff was found to be allergic to mercury. On a form that bore the name of the hospital, he was given a prescription reading as follows: "Calamine Lotion c Phenol (1%) Quantity as desired. Sig. Apply as directed." Six months later the defendant's wife had this prescription filled at a store kept by the defendant at Spooner, Wis. The defendant did not dispense the lotion prescribed but without notice to the wife substituted for it a commercial compound marketed as calazinc lotion. He knew that calazinc lotion contained mercury, but he did not know that it was to be used on a patient allergic to mercury.

When the lotion dispensed by the pharmacist was applied to the patient, new areas of inflammation appeared. The patient's family physician was thereupon consulted. Apparently he knew that the patient was allergic to mercury or was informed of it at that time, for he inquired of the defendant pharmacist whether the compound dispensed by him contained mercury. The pharmacist replied that it did not. On advice of the patient's family physician a more liberal application of the lotion was made. The defendant druggist, however, got word to the patient's physician later that the lotion did contain mercury but not in time to prevent the application that the physician had recommended. Such of it as had been applied was removed as speedily as possible, but the patient's body was blistered and for two months he was unable to wear clothing. He thereupon brought this suit, alleging negligence on the part of the defendant.

Instead of being called on to render a general verdict as to whether the defendant pharmacist had or had not been negligent and to determine the extent, if any, to which the plaintiff had been damaged, the jury was required to render a special verdict, answering several questions of fact propounded to it, leaving the question of negligence to be determined by the court as a matter of law on the basis of the jury's answers. The jury found from the evidence that the defendant pharmacist had failed to use proper care in filling the prescription and that the sickness and disability of the plaintiff was a natural and probable result of such negligence. It found, however, that the defendant could not reasonably have foreseen that injury or damage to the patient would probably follow from his failure to use proper care in filling the prescription. The plaintiff moved for a new trial.

The issue turned apparently on the finding of the jury that the defendant pharmacist could not reasonably have foreseen the injury or damage that would probably result from his failure to use proper care in filling the prescription. A negative answer by the jury to this question might be justified when only the filling of the prescription was concerned, said the trial court, but if it had considered that the plaintiff's family physician made specific inquiry of the defendant as to the presence of mercury in the lotion he had dispensed, it might have concluded that the defendant should have realized that the presence or absence of mercury was important. This matter, the trial court said, should have been submitted to the jury, either by way of question or by appropriate instruction, and this was not done. The court therefore granted a new trial and the defendant appealed to the Supreme Court of Wisconsin.

What the trial court said was held by the Supreme Court to justify fully the order for a new trial. It was clear that the defendant misrepresented a fact when he delivered to the plaintiff's wife a proprietary compound containing mercury, instead of calamine with phenol as described in the National Formulary. There was ample testimony that druggists are expected to fill prescriptions according to the National Formulary or the United States Pharmacopeia, unless the contrary is indicated. There was some testimony that variations from the standard formula were followed by local custom, but it was clear that if such a custom could ever be an excuse it was not so in the present case, for the prescription came from a distant hospital, where the prescribing physician could not be expected to know of local custom prevailing in the city where the prescription was filled. The patient's wife relied on the defendant's unspoken representation that the medicine dispensed was exactly what the physician at Madison had ordered. Later, when the defendant repeated the representation by telling the physician that there was no mercury in the lotion, she, as agent for her husband, the plaintiff, again relied on the truth of the representation. One who makes a representation of fact or law is liable for any bodily harm that results to another person from an act done by that other person, or by a third person, in reliance on the truth of the representation, if the person who makes that misrepresentation knows that his statement is false and intends to induce action, or should realize that it may induce action, by the other or by some third person which involves unreasonable risk of bodily harm. A pharmacist may have had reason to suppose that the medicine which he supplied was just as good as what the physician prescribed, but it must be held that the risk of harm from the substitution without informing the purchaser outweighs any possible utility that the substitution may have had. It is even more apparent that an unreasonable risk was involved in this case in misinforming the physician. In explanation of his falsely answering the inquiry made by the plaintiff's physician, the defendant pharmacist testified that he believed that it was his duty not to disclose to one physician the ingredients in a prescription written by another. The Supreme Court pointed out, however, that he could easily have refused to answer at all. Either of the defendant's acts, in the judgment of the Supreme Court, constituted actionable misrepresentation.

The circumstances of a pharmacist's calling demand the exercise of a high degree of care and skill, the highest degree consistent with the reasonable conduct of the business. The effect of a mistake may be swift and disastrous. There are many cases in which pharmacists have been held liable for injuries resulting from negligence in filling a prescription or supplying a remedy. In the present case the liability is more apparent than in most cases, because the substitution was deliberately made under the mistaken impression that the prescription could be changed in accordance with the pharmacist's judgment.

The order of the trial court granting a new trial was affirmed. —*Hoar v. Rasmusen (Wis.), 282 N. W. 652.*

Society Proceedings

COMING MEETINGS

American Academy of Orthopedic Surgeons, Boston, Jan. 21-25. Dr. Carl E. Badgley, 1313 East Ann St., Ann Arbor, Mich., Secretary.

American Association for the Study of Neoplastic Diseases, Baltimore, Dec. 28-30. Dr. Eugene R. Whitmore, 2139 Wyoming Avenue N.W., Washington, D. C., Secretary.

Annual Congress on Industrial Health, Chicago, Jan. 15-16. Dr. C. M. Peterson, 535 North Dearborn St., Chicago, Secretary.

Annual Congress on Medical Education and Licensure, Chicago, Feb. 12-13. Dr. W. D. Cutter, 535 North Dearborn St., Chicago, Secretary.

Eastern Section, American Laryngological, Rhinological and Otological Society, Pittsburgh, Jan. 5. Dr. John R. Simpson, Medical Arts Bldg., Pittsburgh, Chairman.

Middle Section, American Laryngological, Rhinological and Otological Society, Kansas City, Mo., Jan. 19. Dr. Sam E. Roberts, Professional Bldg., Kansas City, Mo., Chairman.

Society of American Bacteriologists, New Haven, Conn., Dec. 28-30. Dr. I. L. Baldwin, Agricultural Hall, University of Wisconsin, Madison, Wis., Secretary.

Society of Surgeons of New Jersey, Camden, Jan. 31. Dr. Walter B. Mount, 21 Plymouth St., Montclair, Secretary.

Southern Section, American Laryngological, Rhinological and Otological Society, Columbia, S. C., Jan. 8-9. Dr. Walter J. Bristow, Doctors Bldg., Columbia, S. C., Chairman.

Western Section, American Laryngological, Rhinological and Otological Society, Los Angeles, Jan. 26-27. Dr. Pierre Viole, 1930 Wilshire Blvd., Los Angeles, Chairman.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Psychiatry, New York

96: 255-516 (Sept.) 1939. Partial Index

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Study of Accidents in a Mental Hospital. C. A. Bonner and Lois E. Taylor, Hathorne, Mass.—p. 283.
Review of Results of Pharmacologic Shock Therapy and Metrazol Convulsive Therapy in New York State. J. R. Ross, Wingdale, N. Y., and B. Malzberg, Albany, N. Y.—p. 297.
Results and Observations on Insulin Shock Treatment of Schizophrenia. E. D. Bond, J. Hughes and J. A. Flaherty, Philadelphia.—p. 317.
*Regarding Sodium Amytal as Prognostic Aid in Insulin and Metrazol Shock Therapy of Mental Patients (Dementia Praecox). M. M. Harris, W. A. Horwitz and E. A. Mlich, New York.—p. 327.
*Irreversible or Hyperglycemic Insulin Coma: Its Cause and Its Response to Blood Transfusion. J. Wortis and R. H. Lambert, Baltimore.—p. 335.
Evaluation of Therapeutic Factors in Pharmacologic Shock. L. S. Lipschutz, R. W. Cavell, R. Leiser, E. N. Hinko and S. H. Ruskin, Eloise, Mich.—p. 347.
Observations of Insulin Sensitivity. S. J. Tillim, Amityville, N. Y.—p. 361.
Significance of Babinski Sign During Hypoglycemic Treatment of Schizophrenia. M. Heiman, Fulton, Mo.—p. 387.
Central Nervous System Changes Produced by Insulin. K. E. Appel, B. J. Alpers, D. W. Hastings and J. Hughes, Philadelphia.—p. 397.
Phantom Limb: Its Origin and Its Relationship to Hallucinations of Psychotic States. A. Gallinek, New York.—p. 413.

Sodium Amytal in Dementia Praecox.—According to Harris and his colleagues, in some earlier studies it was found that the intravenous injection of a freshly prepared 10 per cent solution of sodium amytal in prenarcotic doses produced transient ameliorating effects on some psychotic patients. Since such an ameliorating response indicated that the disturbed cerebral functions of these patients could be influenced favorably by a chemical agent, this reaction to the intravenous injection of sodium amytal was compared with the subsequent therapeutic effect of insulin hypoglycemic shock and metrazol convulsant therapy. The prenarcotic doses of sodium amytal were given fifty-five patients with dementia praecox prior to insulin hypoglycemic therapy. Thirty patients gave an ameliorating response to the sodium amytal and twenty-three of these a favorable response to insulin hypoglycemic treatment. The remaining twenty-five patients did not give an ameliorating response to sodium amytal and sixteen of these failed to respond to insulin treatment. The response to the sodium amytal test appears to be of prognostic value in insulin hypoglycemic shock therapy. Further studies are indicated.

Irreversible or Hyperglycemic Insulin Coma.—Wortis and Lambert point out that irreversible or hyperglycemic insulin coma presents a typical picture consisting of a sustained high blood sugar (following intravenous dextrose), fever, rapid pulse and respiration and frequently fits, vomiting or diarrhea. It is a serious complication occurring not only in shock treatment but no doubt in the management of diabetes as well. It may result in death or in permanent cerebral damage, but psychiatric persons who recover often show dramatic improvement in their mental state. Hyperglycemic coma is probably due to a therapeutic coma that has been prolonged beyond an hour or an hour and a half. Such prolongation is often unintentionally allowed, because the presence of gastric retention makes termination by tube feeding ineffective. As a practical consequence coma should generally not be allowed to last more than an hour or an hour and a half, especially when patients tend to rouse slowly, and sugar should be given intravenously to all those who do not begin to rouse fifteen or twenty minutes after tube feeding. In the authors' three cases of irreversible coma intravenous dextrose and the transfusion of 500 cc. of citrated blood appeared effective. It would appear that the whole blood contains substances, other than oxygen or sugar, essential for cerebral metabolism, which have been destroyed or depleted by protracted coma. The dramatic psychiatric improvement in certain cases following prolonged coma suggests that if a safe method for such prolongation could be devised, it would further extend the value of shock treatment.

Annals of Internal Medicine, Lancaster, Pa.

13: 563-748 (Oct.) 1939

Culture of Human Marrow: Studies of Effects of Roentgen Rays. E. E. Osgood and G. J. Bracher, Portland, Ore.—p. 563.
*Sulfanilamide and Meningitis. S. W. Sappington and G. O. Favorite, Philadelphia.—p. 576.
Five Years' Experience (1933-1937) with Mortality from Acute Coronary Occlusion in Philadelphia. O. F. Hedley, Philadelphia.—p. 598.
Observations on Experimental and Clinical Use of Sulfapyridine: III. Mechanism of Recovery from Pneumococcic Pneumonia in Patients Treated with Sulfapyridine. W. B. Wood Jr. and P. H. Long, Baltimore.—p. 612.
Observations on Toxicity and Clinical Value of Strophanthin. W. A. Brams, J. S. Golden, A. Sanders and L. Kaplan, Chicago.—p. 618.
Choice of Ovarian or Pituitary Therapy for Menstrual Disturbances. E. L. Sevringhaus, Madison, Wis.—p. 629.
New Mathematical Method for Evaluation of Endogenous Insulin Secretion. M. M. Miller and O. P. Allen, Akron, Ohio.—p. 636.
*Clinical Pictures Associated with Increased Blood Pressure: Study of 100 Patients. J. R. Williams Jr. and T. R. Harrison, Nashville, Tenn.—p. 653.
Cutaneous Xanthomatosis. H. Montgomery, Rochester, Minn.—p. 671.
Mechanism of Psychoneuroses. T. Klingmann, Ann Arbor, Mich.—p. 677.
Plasma Lipoids in Arteriosclerosis Obliterans. N. W. Barker, Rochester, Minn.—p. 685.
Mucosal Changes Accompanying Gastric Ulcer: Gastroscopic Study. R. Schindler, Chicago, and R. J. Baxmeier, Pittsburgh.—p. 693.
*Neoprontosil (Orally) in Treatment of Chronic Ulcerative Colitis. A. E. Brown, W. E. Herrell and J. A. Bargen, Rochester, Minn.—p. 700.

Sulfanilamide and Meningitis.—Sappington and Favorite present twenty-two cases of various types of meningitis treated with sulfanilamide and review the 205 cases reported in the literature. The matter is viewed almost solely as a clinical experiment analogous to experimental work in animals in which the death or survival of the animal is the criterion of the success or failure of the therapy. This is feasible because of the almost certain fatal outcome of all forms of acute meningitis, so that recovery under sulfanilamide of any large group of cases may be reasonably attributed to the drug (except in meningococcic and gonococcic meningitis, in which recovery does occur at times and the therapeutic value of the drug must be correspondingly modified). No definite conclusions can be drawn as to the value of sulfanilamide in meningitis as an entity owing to the variation in results in the different types of meningeal infection. Final opinions cannot be given in most instances until more cases accumulate in the literature. However, it may be said that the value of sulfanilamide in beta hemolytic streptococcus meningitis has been established beyond dispute. A reduction of the mortality from 95 per cent and above to about 20 per cent speaks for itself. Infections due to Streptococcus viridans, the tubercle bacillus or the gonococcus treated with sulfanilamide are too few in number for appraisal. The results so far in influenzal meningeal infections are discouraging. In pneumococcic meningitis with its terrific mortality, the outcome, nine recoveries in thirty-nine cases, at least warrants further trial and seems to offer possibilities. There were eleven deaths in eighty-four cases of meningococcic meningitis, a mortality of only 13 per cent, which appears remarkable. However, Hoyne reports only a mortality of 16 per cent in serum treated cases, and as in many of the drug cases serum also was given, conclusions should be withheld. However, if results are equal, sulfanilamide seems preferable. The necessity for specific serums in addition to the drug, as suggested by experimental work, has yet to be proved. As satisfactory concentrations of the drug in the blood and spinal fluid are easily attained by the oral route, it might be better to do away with intrathecal treatment and avoid the possible irritating influence of spinal taps for drainage and injection purposes.

Increased Blood Pressure.—Williams and Harrison studied 100 patients with increased blood pressures. Persons displaying elevation of only the systolic pressure and individuals with acute or chronic glomerulonephritis have been excluded. Certain patients presenting unusual types of hypertension have been

deliberately included for illustrative purposes. All the patients have had complete histories and physical examinations, urinalyses, blood counts and determination of the nonprotein nitrogen of the blood, and other laboratory tests. After the observations of each patient had been summarized and tabulated an attempt was made to separate the cases into various syndromes. However, in the present state of inadequate knowledge such separation is not entirely justifiable. Although it has not been possible to distinguish with certainty between the underlying and the aggravating causes of hypertension, and although in many instances more than one factor has seemed to be of importance, most of the individuals have displayed one major condition which appeared to be the most significant cause of the increased blood pressure. By recognizing and treating the underlying and contributing factors much can be accomplished in the alleviation of the disorders which are characterized by hypertension. The authors' classification of hypertension into six groups is suggested as representing a working approach toward an etiologic concept of the disorder: 1. Hypertension of neurogenic origin may be due to psychogenic, medullary, increased intracranial pressure and reflex causes. 2. That due to endocrine causes can be initiated by pituitary, adrenal and ovarian disorders. 3. The causes of renal hypertension are acute and chronic glomerular nephritis, obstruction to urine flow, infection of the urinary tract, diseases of the renal arteries and renal tumors. 4. Hypercholesterolemia (renal atheroma) and gout (uric acid deposits in the kidneys) are causes of metabolic hypertension. 5. In this group the hypertension is brought about by congestive heart failure. 6. The sixth classification includes mixed and unclassified causes of hypertension. No attempt has been made to distinguish between underlying and aggravating causes of hypertension. Thus, glomerular nephritis is clearly an underlying cause, while mental stress and strain is in all probability an aggravating or precipitating cause. Many of the conditions which have been listed seem to produce hypertension only when they occur in predisposed subjects. However, until more is known about this question it seems wise to include in an etiologic classification all factors which seem to produce hypertension, even though they may not initiate the disorder but serve only to intensify it. It makes little difference whether a given condition is underlying or aggravating, provided treatment directed toward it will produce benefit.

Neoprontosil for Chronic Ulcerative Colitis.—Brown and his co-workers used neoprontosil (oral) for the treatment of forty-eight patients with chronic ulcerative colitis. For further evaluation of the drug twenty-nine of these patients were treated with neoprontosil alone (group A). The remaining nineteen were given serum or vaccine in conjunction with neoprontosil (group B). In 44.8 per cent of the patients in group A the clinical results were considered excellent, in 44.8 per cent the results were fair and failure of treatment or poor results occurred in only 10 per cent. Analysis indicates that in 42 per cent of the patients in group B the results were excellent, whereas in 32 per cent they were fair and the treatment failed or poor results occurred in 26 per cent of this group. The authors state that the clinical response to neoprontosil is not predictable on the basis of the amount of intestine involved by the disease so long as its destruction is not too great. Obviously, all that any drug can be expected to accomplish is the control of symptoms that are due to active infection; those symptoms which result from altered function of a deformed intestine must be expected to continue to cause disturbances. If neoprontosil is used early in the course of chronic ulcerative colitis it seems that the maximal effect from the drug will be obtained. The prompt improvement of these lesions which has occurred so frequently and uniformly after the use of neoprontosil, the authors believe, justifies the conclusion that the drug is of definite benefit in this disease. However, the tendency of the disease to recur must be appreciated fully. Therefore they continued to give intermittent courses of treatment even when the disease has been symptomatically and objectively inactive for some months. The lack of toxic manifestations associated with the use of neoprontosil in general makes it especially adaptable to the treatment of chronic ulcerative colitis.

Archives of Internal Medicine, Chicago

64: 897-1132 (Nov.) 1939

Optimal Time for Administration of Protamine Zinc Insulin. M. F. Mark, New York.—p. 897.
Deleterious Effects of Experimental Protamine Insulin Shock. J. W. Sherrill and E. M. MacKay, San Diego, Calif.—p. 907.
Transport of Air Along Sheaths of Pulmonic Blood Vessels from Alveoli to Mediastinum: Clinical Implications. C. C. Macklin, London, Ont.—p. 913.
*Studies on "Essential" Hypertension: I. Classification. H. A. Schroeder and J. M. Steele, New York.—p. 927.
Shock. L. Meyler, Groningen, The Netherlands.—p. 952.
Incidence of Fatal Cardiovascular Disease in Charleston, S. C., with Particular Reference to Hypertension. T. M. Peery, Washington, D. C., and S. M. Langsam, New York.—p. 971.
Blood "Guanidine": Further Observations. R. H. Major, C. J. Weber and M. J. Rumold, Kansas City, Kan.—p. 988.
Multiple Myeloma. H. Ulrich, Boston.—p. 994.
Lipocaic and Fatty Infiltration of Liver in Pancreatic Diabetes. L. R. Dragstedt, C. Vermeulen, W. C. Goodpasture, P. B. Donovan and W. A. Geer, Chicago.—p. 1017.
*Structural Changes in Lungs of Drug Addicts. G. C. Cole, New York.—p. 1039.
Syphilis: Review of Recent Literature. J. E. Moore and C. F. Mohr, Baltimore.—p. 1053.

Classification of Essential Hypertension.—In an atempt to classify the contributing causes of essential hypertension, Schroeder and Steele review the 218 cases encountered at their hospital during the last ten years. At present ninety of the patients are dead, there is no information about eleven and 117 are living. Of the latter, 114 continue to be observed. All were referred as having typical "essential" hypertension and either exhibit or have exhibited elevation of diastolic pressure without failure of renal function. In most cases the time of the onset of hypertension is known within two years. Although essential hypertension has been regarded as a primary disease, the question is raised again whether it is not merely a syndrome common to a number of maladies. If so, some or all of the contributing mechanisms (renal disease, disorders of the nervous system, endocrine dysfunction and vascular disease) would be better understood if viewed in association with coexistent disturbances. The adoption of this attitude has been useful in understanding and in classifying cases in which hypertension has been considered essential and in which the underlying abnormal processes of the four systems set forth have been unsuspected. 1. Renal disease can be regarded as causally related to hypertension only in cases in which the diastolic pressure has fallen after a diseased kidney has been removed. Certain renal abnormalities seem to occasion hypertension, although they occur also in its absence. The condition is designated "renal hypertension with failure." In these patients a rapid course is not unusual (35 per cent), hemorrhagic and exudative lesions of the retina are common (65 per cent) and death from renal failure is often the outcome (76 per cent). 2. In the group suggesting derangement of certain functions of the nervous system (nervous hypertension) the arterial hypertension is benign. It occurs in younger persons and occasions few of the signs commonly associated with hypertension at this age. Changes in the retina, cardiac enlargement and failure of renal function are unusual. The lability of the blood pressure is noteworthy. The progress of the disease appears to be extremely slow even when the blood pressure is definitely elevated. The predominance of symptoms is of the nervous system. 3. It is still not clear whether dysfunction of the endocrines can be responsible for elevation of arterial pressure except in cases of pronounced endocrine dyscrasia (e. g., cases of Cushing's syndrome). However, endocrine dysfunction of less pronounced form is undoubtedly associated with essential hypertension in some cases, as it was present in 19 per cent of the authors' cases. They have called such a condition "endocrine hypertension." The patients in this category frequently complain of severe headache. In cases of "nongoitrous thyrotoxic hypertension" the illness progresses rapidly, symptoms are severe, and hemorrhagic and exudative lesions are seen in the retina. If the hypertension begins at the menopause and after recovery from hyperthyroidism, it runs a benign course. While in ten of forty-three patients the course was consistent with the diagnosis of malignant hypertension, thirteen lived more than ten years. 4. Arterial hypertension is now believed to follow lesions of the blood vessels only when these lesions involve the arteries supplying the kidney. A constrictive mechanism of these arteries is believed to be operative when they are narrowed by arteriosclerosis. The course is usually benign (87 per cent),

arteriosclerosis of the vessels of the retina (but not retinitis) is common (97 per cent) and the terminal event is often apoplexy (64 per cent). Hypertension of this type is designated "arteriosclerotic hypertension." The authors believe that their study suggests that essential hypertension is not a primary disease. The fact that this diagnosis is made by exclusion should indicate multiple causes. Associated disturbances may be significant. A new classification is obvious. The present one cannot be regarded as more than tentative. However, it has been of advantage in facilitating diagnosis, in making prognosis more accurate and in indicating a more reasonable therapy. It is desirable that other means of differentiation be utilized to establish what is essential in this condition.

Structural Changes in Lungs of Drug Addicts.—During the last fifteen months Cole examined roentgenograms of the chest of 674 male drug addicts. In most instances they were taken after and in a few during the height of withdrawal symptoms. The status of the upper respiratory tract of 100 ambulatory drug addicts was determined. The investigation consisted of routine examinations of the sinuses by transillumination, and the sinuses of fifty were examined roentgenologically. The teeth, tonsils, pharynges and nasal septums were inspected. In eighty other cases the changes were observed accidentally in the hospital after the development of acute illness. The 674 addicts were divided into two classes: those who entered the hospital voluntarily and those who were imprisoned for crimes not necessarily connected with the use of drugs. The youngest addict was 17 and the oldest 62 years of age; the average age was 39. The average duration of addiction was eighteen years, with a range from three months to thirty-nine years. Almost all the patients had taken more than one drug at some time. Heroin (diacetylmorphine) was the drug most commonly employed. Opium and its derivative morphine were next in order. Cocaine, contrary to popular conception, was used comparatively less than the others. Most of the drugs were taken subcutaneously. The addicts represented every stratum in the social scale. The withdrawal treatment, lasting six days, to which the addicts were subjected consisted of subcutaneous injections of progressively diminished quantities of morphine sulfate. The roentgenograms of the chest of only ninety-two of the 674 addicts, 13.5 per cent, were entirely normal. The commonest abnormality (207 cases) consisted of pulmonary changes characteristic of hypertrophic emphysema, i. e. voluminous lung fields, prominent hilar shadows, diffuse, increased vascular markings, obliteration of one or both costophrenic sinuses, and tenting and occasionally distortion of one or both diaphragmatic domes. Most of these patients used drugs for from fifteen to twenty years. Ninety-four patients merely showed signs of emphysema without generalized increase in pulmonary markings. Thirty-two addicts, according to whom there was only a short period of addiction, from three months to five years, showed increased markings with slight signs or no signs of emphysema. The remaining 249 addicts displayed, in addition to emphysema, some of the following changes: fibro-indurative tuberculosis of one or both apexes and occasionally of the subapical regions, minimal apical scarring, fibrocaseous pneumonic tuberculosis, calcified tuberculosis of one or both upper lobes, bronchiectasis, calcareous pleuritis (one case), interlobar effusion (one case) and emphysema bullosum (one case). About 30 per cent of the addicts with abnormal x-ray changes showed foci of infection of the upper part of the respiratory tract on routine physical examination. The author concurs with other workers that infections of the upper part of the respiratory tract play an important part in the production of structural changes in the lungs. However, in the 70 per cent of cases in which there were abnormal pulmonary changes but no apparent etiologic factor the age range itself (average 39 years) tends to explain these changes without an etiologic factor. Of the diseases which coexisted or developed during the period of incarceration, only tuberculosis is considered. Tuberculosis in all its forms constituted only 7 per cent. This is not without clinical significance. The experimental work of Brunelli and Luisida lends strong support to the conception that morphine sulfate when used in large doses over a prolonged period will produce definite structural pulmonary changes as well as alteration in the pulmonary circulation.

Archives of Surgery, Chicago

39: 691-900 (Nov.) 1939

Etiology of Gallstones: Critical Survey of Literature and Study of Applicability of Various Theories in 239 Operative Cases. R. F. Carter, C. H. Greene, J. R. Twiss and R. Hotz, New York.—p. 691.
Treatment of Varicose Veins. G. O. Dean and J. W. Dulin, Iowa City. —p. 711.
Nerve Action Potentials in Experimental Traumatic Shock. R. D. Cressman and E. W. Benz, Nashville, Tenn.—p. 720.
Surgical Excision of Material for Biopsy in Lymphomatous Diseases. J. S. Binkley, New York.—p. 728.
Muscular and Skeletal Changes in Arachnodactyly. J. J. Fabey, Chicago.—p. 741.
Reactions of Peritoneum to Trauma and Infection: Further Experimental Studies. F. A. Coller, H. K. Ransom and C. S. Rife, Ann Arbor, Mich.—p. 761.
Stages in Peritonitis Based on Defense Mechanism in Relation to Treatment. B. Steinberg, Toledo, Ohio.—p. 770.
Peritonitis in Cats Produced by Intraperitoneal Injection of Bacillus Coli Suspended in Mucin. G. P. Seley, New York.—p. 783.
Tumor of Thalamus: Ventriculographic Entity. O. R. Hyndman and C. Van Epps, Iowa City.—p. 792.
*Scoliosis Following Empyema. S. Selig and E. Arnheim, New York.—p. 798.
*Multiple Myeloma: Review of Forty Cases. M. Batts Jr., Ann Arbor, Mich.—p. 807.
Causal Significance to Traumatic Ossification of Fibrocartilage in Tendon Insertions. E. F. Hirsch and R. H. Morgan, Chicago.—p. 824.
Review of Urologic Surgery. A. J. Scholl, Los Angeles; F. Hinman, San Francisco; A. von Lichtenberg, Budapest, Hungary; A. B. Hepler, Seattle; R. Gutierrez, New York; G. J. Thompson, J. T. Priestley, Rochester, Minn.; E. Wildbolz, Berne, Switzerland, and V. J. O'Conor, Chicago.—p. 838.

Scoliosis Following Empyema.—Because it was thought that scoliosis occasionally followed operation for empyema, Selig and Arnheim studied the records of sixty-five patients with nontuberculous empyema who were operated on at the Mount Sinai Hospital during the years 1932 to 1936 inclusive. An explanation was sought why some patients had persistent scoliosis after empyema while others, with apparently similar involvement, recovered without any permanent spinal deformity. The sixty-five patients examined from one to six years after operation for empyema are unselected and represent one third of all those operated on and they are a representative sample. Five had clinical evidence of scoliosis, but the curve of only two was severe. Of these two patients with chronic empyema beginning at the ages of 11 and of 2½ the primary curves were respectively 97 and 44 degrees. The curvatures were of contrasting types; the first had its convexity on the side of an extensive rib resection (thoracoplasty scoliosis); the second was concave on the side of the empyema, a typical postempyemic curve. Of the three patients presenting slight curves, two began to have chronic empyema at the age of 12 and multiple short rib resections had been performed. When observed eighteen years later, both had high dorsal curves, of 17 and 12 degrees respectively, with the concavity on the side of the empyema and compensatory dorsolumbar curves in the opposite direction. The remaining patient, a boy, began to have the chronic empyema at the age of 4. A partial thoracoplasty was done at 10 and when he was observed four years after the operation there was a curve of 9 degrees with the convexity on the diseased side. An analysis of the sixty cases in which empyema was not followed by lasting scoliosis shows that persistent scoliosis did not occur in any of the fifty-two in which there was acute empyema (with onset between less than 1 and more than 20 years of age) and in which wounds healed permanently in the mean time of four months or less. In the eight in which chronic empyema was present, scoliosis did not develop despite multiple operations, rib resections and excisions of the soft parts, whereas in the five in which persistent scoliosis did develop it followed thoracoplasties or multiple rib resections. Therefore the reasons for the appearance or nonappearance of persistent scoliosis following chronic empyema are not apparent, though clearly it does not follow acute empyema.

Multiple Myeloma.—Batts reports that the incidence of multiple myeloma at the University Hospital is at variance with its incidence as reported by other sources. Life insurance tables give its incidence as 0.03 per cent of all malignant growths or 3 per cent of all sarcomas of bone. In the American Registry of Bone Tumors, in proportion to osteogenic sarcoma it is in the ratio of approximately 1:12, and to Ewing's sarcoma of approximately 1:3. Of the 200 primary malignant tumors of bone seen at the University Hospital since 1925, forty have been diagnosed as multiple myeloma, an incidence of 20 per cent. The

Johns Hopkins Hospital reports an incidence of only 3 per cent of 400 sarcomas of bone. The forty cases of multiple myeloma discussed by the author were encountered in 298,546 admissions to the hospital, a ratio of 1:7,464. The average age of the patients in the series was 53 years. Multiple myeloma occurs almost twice as frequently in men as in women. Etiologically it is not related to trauma. Its chief symptom is pain, which may occur in any location and is not characteristic except that there is usually a single period of remission. Palpable soft tumors are found in half of the patients, usually on the skull or on the trunk. Pathologic fractures are common. Deformities of the thoracic cage and of the spine are not unusual. Paraplegia and nerve involvement referable to the spinal cord are frequent complications. Multiple myeloma occurs most frequently in the skull, spine, ribs and pelvis, in this order. X-ray examination shows multiple punched-out areas of osseous destruction with no evidence of osseous reaction. Secondary anemia and, in half of the cases, Bence Jones protein in the urine are present. The lesions show masses of round cells that resemble plasma cells, with little or no intercellular substance. At necropsy in about half of the cases the soft tissues, particularly the liver, spleen and kidneys, are invaded by myeloma. Arteriolosclerotic nephropathy is present in most cases. Roentgen therapy gives relief from pain and prolongs life. Laminectomy and decompression of the spinal cord are indicated in cases of paraplegia due to multiple myeloma. Multiple myeloma is invariably fatal. The average duration of life from the onset of symptoms of the disease until death is about two and one half years. The longest survival on record in a proved case is fourteen years and four months. The prognosis is more favorable for relatively young patients and for those with initial solitary involvement, which usually became multiple before death.

Endocrinology, Los Angeles

23: 661-844 (Nov.) 1939. Partial Index

*Treatment of Hypogenitalism in the Male with Gonadotropic Principle of Pregnant Mare's Serum. R. H. Kunstadter, Chicago.—p. 661.

Comparison of Four Methods of Bio-Assay for Gonadotropic Factors. R. T. Frank and Rose L. Berman, New York.—p. 683.

*Relief of Myxedema with Proteins of Extrathyroidal Origin. J. Lerman and W. T. Salter, Boston.—p. 712.

Somatic Growth Depressing Effect of Testosterone Propionate. H. S. Rubinstein, A. A. Kurland and M. Goodwin, Baltimore.—p. 724.

Responses of Female to Male Hormone Substances: Notes on Behavior of Hens and Newly Hatched Female Chicks. J. B. Hamilton and W. R. C. Golden, New Haven, Conn.—p. 737.

Urinary Excretion of Estrogens, Androgens and Follicle Stimulating Hormone Following Administration of Testosterone to Human Female Castrates. I. T. Nathanson and Lois E. Towne, Boston.—p. 754.

Influence of Anterior Pituitary Extracts on Proteins of Liver. O. B. Hinchin, Columbia, Mo.—p. 759.

Further Studies on Antagonist to Adrenalin Hyperglycemia in Pituitary Extracts. A. H. Neufeld and J. B. Collip, Montreal.—p. 775.

Properties of Ovarian Extracts. H. W. Marlow, Manhattan, Kan.—p. 793.

Treatment of Male Hypogenitalism with Mare's Serum.—According to Kunstadter, it is now generally agreed that the anterior pituitary-like hormone from pregnancy urine and placenta are of definite value in the treatment of some types of hypogenitalism and cryptorchidism. In view of the remarkable gonad stimulating properties of pregnant mare's serum (resembling in biologic effects those of the anterior lobe extract) in experimental and domestic animals and because of the convenient source of the hormone, it seemed justifiable to demonstrate the clinical effects of the hormone on patients with hypogenitalism and cryptorchidism. Fourteen boys between the ages of 6½ and 14¼ years, who presented hypogenitalism, cryptorchidism or both, were treated by the intramuscular administration of pregnant mare's serum. Definite improvement as evidenced by growth of the genitalia, the appearance of secondary sex characteristics or descent, partial or complete, of undescended testes occurred in eight, or 66⅔ per cent. Cryptorchidism was present in eleven of the fourteen patients, pseudocryptorchidism in four, and true cryptorchidism in seven. In the latter group complete descent of the testes occurred in one or both testes of three and partial descent in two patients. Two cryptorchids did not respond to treatment. There was no change in the distribution of fat or weight loss of any of the patients. It is believed that mare's serum is of definite value in the treatment of certain cases of hypogenitalism and cryptorchidism. As yet the optimal effective dose has not been established, but the author believes that from 50 to 100 rat units intramuscularly three times a week probably will be more effective than the 10 to 20 three times a week administered to his patients. With the higher dosage, results would probably be obtained in a shorter time.

Proteins of Extrathyroidal Origin in Myxedema.—Lerman and Salter say that the isolation of thyroxine by Kendall led to the conception that the prime function of the thyroid is the manufacture of this substance in toto. These studies, however, show that the simple incorporation of iodine into nondescript protein leads to thyroidal activity. When blood serum protein, in ammoniacal solution, is treated with compound solution of iodine according to the procedure of Wormall, within a short time there results an iodoprotein. The iodoprotein was administered to patients with athyreosis, and rapid and complete recovery occurred with proper dosage. Control patients who were given noniodinated serum protein showed no effect. In terms of total mass, the activity of the iodoprotein was about one fifth that of whole thyroid; in terms of iodine the activity was about one four hundredth. This discrepancy in activity is due partly to the presence of iodine in inert combination in the iodoprotein and in its derivatives. The low potency in terms of iodine is probably due also to the fact that the effective iodine-containing group is an iodothyronine derivative, which has lower potency than thyroxine. The iodinated protein can be fractionated by enzymes or alkaline hydrolysis into thyroxine-like (T) and into diiodotyrosine-like (D) fractions. The latter were inert; the former possessed all the activity present in the original iodoprotein. As with the enzymatic split products of thyroglobulin, the D fraction yielded no thyroxine-like amino acid after drastic treatment with hot barium hydroxide solution, whereas the T fraction yielded, under such treatment, material which resembled iodothyronine derivatives (related to thyroxine). The latter can likewise be recovered from the original iodoprotein by drastic alkaline hydrolysis without previous separation into component peptones. Such a procedure is the standard method for obtaining thyroxine from thyroglobulin. The observations reported here show that simple iodoprotein as well as its hydrolysates are effective in relieving human myxedema. This evidence that thyroidal activity can arise in a colloidal molecule through simple iodination throws some doubt on the prevailing concept that the thyroid gland manufactures thyroxine in toto and then builds it into a protein for storage. Perhaps in the iodinated colloid itself may be found the beginning of thyroidal activity.

Johns Hopkins Hospital Bulletin, Baltimore

65: 353-430 (Nov.) 1939

Arteriosclerosis and Partial Obstruction of Main Renal Arteries in Association with "Essential" Hypertension in Man. S. S. Blackman Jr., Baltimore.—p. 353.

*Four Cases of Gonococcic Endocarditis Treated with Sulfanilamide, with Recovery of One. P. H. Futcher and V. C. Scott, Baltimore.—p. 377.

Experimental Studies on Cultural Behavior and Infectivity of Lymphopathia Venereum Virus Maintained in Tissue Culture. G. O. Gey and F. B. Bang, Baltimore.—p. 393.

Factors Influencing Plasma Prothrombin in Newborn Infant: II. Antepartum and Neonatal Ingestion of Vitamin K Concentrate. L. B. Shettles, Eleanor Delfs and L. M. Hellman, Baltimore.—p. 419.

Sulfanilamide in Gonococcic Endocarditis.—Futcher and Scott state that four patients at the Johns Hopkins Hospital with gonococcic endocarditis received a seemingly adequate course of treatment with sulfanilamide. Three of them died and the diagnosis was subsequently corroborated at necropsy; the fourth patient recovered. After presenting detailed histories, the authors point out that the patient who recovered from her illness does not completely fulfil the most rigid criteria for establishing the presence of bacterial endocarditis. The regularity of the temperature curve, the cardiac symptoms in the presence of a positive blood culture and the nephritis make it seem likely that she suffered from a gonococcic endocarditis, probably involving the pulmonic valve. However, in view of the previous history of dyspnea on exertion, it is impossible to exclude the possibility that the patient may have had either a long-standing rheumatic lesion of the aortic valve or a patent ductus arteriosus, to explain the precordial murmurs, and that the present illness was merely a bacteremia without acute endocardial involvement. It is of interest that the patient showed two peaks of fever daily, a symptom noted by Horder and recently emphasized by Williams and Futcher as common in

gonococcic endocarditis. Further, she showed the jaundice reported as complicating the latter disease. Finally, the patient had diffuse glomerular nephritis, which is frequently associated with gonococcic endocarditis. In evaluating the role of sulfanilamide in the improvement of this case, it should be recalled that recovery from proved gonococcic endocarditis itself has occurred following supportive therapy alone. The three patients who died despite treatment with sulfanilamide all received the drug more or less continuously for periods of from seven to fifty-four days. Blood levels of unacetylated sulfanilamide of 10 mg. or more per hundred cubic centimeters were attained, though not always constantly maintained, by each of the three patients. One of the patients died following a hemiplegia presumably due to a cerebral embolus. Another succumbed to myocardial failure apparently due to the hypertension accompanying a severe nephritis that complicated his endocarditis. In the valvular vegetation of neither of these patients were gonococci demonstrated. Since gonococci are notoriously difficult to cultivate, it cannot be stated with any certainty that no gonococci remained in the vegetations. It is possible, however, that the endocardial infection had been eradicated and that, had the processes complicating the endocarditis not occurred, these two patients might have survived. Treatment of a fourth patient with sulfanilamide proved ineffectual. Despite treatment with the drug over a period of twenty-five days and the attaining of blood levels of from 9.7 to 18.1 mg. per hundred cubic centimeters, viable gonococci were present in the endocardial vegetations at necropsy. Whether the responsible organism represented a strain of gonococcus peculiarly resistant to the influence of sulfanilamide was not determined experimentally.

Journal of Immunology, Baltimore

37: 305-412 (Oct.) 1939

Pneumococcus Capsular Polysaccharide in Urine: Detection by Precipitation and Centrifugation. P. F. de Gara, S. C. Bukantz and J. G. M. Bullowa, New York.—p. 305.
Experiments on Histamine Refractoriness: II. Nonspecific "Desensitization" Through Oral Application of Histamine. L. Farmer, New York.—p. 321.
Equine Encephalomyelitis in Monkeys. R. W. G. Wyckoff and W. C. Tesar, Pearl River, N. Y.—p. 329.
*Bactericidal Effect of Sulfanilamide on Pathogenic and Nonpathogenic Staphylococci. W. W. Spink, Minneapolis.—p. 345.
Serologic Variants of Pneumococcus Types IX and X. B. Vammen, Copenhagen, Denmark.—p. 359.
Effect of Temperature on Combination and Aggregation and on Equilibrium in Reaction Between Antigen and Antibody. Edna M. Fellensby and S. B. Hooker, with assistance of Elizabeth T. Leach, Boston.—p. 367.
Quantitative Studies on Infectivity of Virus of Herpes Simplex for Chorio-Allantoic Membrane of Chick Embryo, Together with Observations on Inactivation of Virus by Its Specific Antiserum. M. F. Shaffer and J. F. Enders, Boston.—p. 383.

Effect of Sulfanilamide on Staphylococci.—While sulfanilamide appears to be capable of sterilizing human urine containing staphylococci, it is of doubtful therapeutic value in the treatment of bacteremia and in conditions in which the deeper tissues have been invaded by the organisms, according to Spink. This discrepancy in therapeutic effectiveness prompted him to study the bactericidal effect in vitro of sulfanilamide on various strains of staphylococci. The influence of each of the following factors on this bactericidal effect has been observed: the culture mediums, with special reference to their ingredients; the strain of staphylococcus; the number of organisms in the original inoculation; the concentration of sulfanilamide; the temperature at which the suspensions of organisms and the drug were incubated, and the initial p_H of the substrate. Nineteen strains of staphylococci have been included in this study. Twelve strains belonged to the pathogenic group, and seven were considered nonpathogenic. Sulfanilamide in high concentrations had little or no bactericidal effect on organisms suspended in peptone broth and incubated at 37 C. When the mixtures of organisms and the drug were incubated at 40 C., the bactericidal effect was more pronounced. Sulfanilamide was bactericidal for the strains when the organisms were suspended in urine. The maximum effect took place at an incubation of 40 C. and was not dependent on the initial p_H of the urine. The presence of small quantities of added peptone in urine completely interfered with the bactericidal action of the drug. Discussing the significance of this action of peptone the author points out that, although peptone appears to interfere with the action of sulfanilamide on the hemolytic streptococcus, this interference seems more marked for the staphylococcus. This may account in part for the failure of sulfanilamide in the treatment of staphylococcic sepsis. The author has treated persons with sulfanilamide whose tissues were invaded by both beta hemolytic streptococcus and Staphylococcus aureus. After a period of therapy, bacteriologic studies of material from the invaded areas revealed the absence of the streptococcus, but staphylococci were still present. He suggests that in staphylococcic sepsis in which tissue necrosis is a feature of this type of sepsis, peptone-like substances are formed as the result of the breakdown of protein material and this interferes with the action of sulfanilamide on the organisms. He shows that recent studies by several investigators (Lockwood, Larson, Shaffer), although not fully explaining the relationship of peptone to the activity of sulfanilamide, throw some light on this important problem.

Journal of Lab. and Clinical Medicine, St. Louis

25: 1-112 (Oct.) 1939. Partial Index

*Effect of Fever Therapy on Carbohydrate Metabolism. M. B. Kirstein and L. Bromberg, St. Louis.—p. 7.
Is There a Platelet-Reducing Substance in the Spleen of Thrombocytopenic Purpura? R. H. Major and C. J. Weber, Kansas City, Kan.—p. 10.
Effect of Gastric Mucin on Hemoglobin Regeneration in Anemic Dogs. H. S. Wigodsky, R. A. Bussabarger and S. J. Fogelson, Chicago.—p. 13.
Effect of Sodium Bromide on Nutrition and Gastrointestinal Tract of Epileptic Patients. A. J. Arieff, Chicago.—p. 19.
Correlation of Clinical, Electrocardiographic and Circulation Time Findings in Determining Cardiac Status in Infectious Diseases. L. H. Sigler, P. I. Nash, I. Stein and S. Epstein, Brooklyn.—p. 24.
Frequency of Syphilis in Office Practice. H. G. Hadley, Washington, D. C.—p. 45.
Dental Cooperation in Diabetes Mellitus. S. Blaustein and E. Ferguson, Brooklyn.—p. 47.
Experimental Study of Rectal Administration of Mercurial Diuretics. I. J. Brightman and R. A. Lehman, New York.—p. 56.
Routine Laboratory Examinations for Corynebacterium Diphtheriae. C. A. Perry and Elizabeth Petran, Baltimore.—p. 71.
Rapid Technic for Syphilis Testing with Finger Blood. P. L. Kirk and C. Bennett, Berkeley, Calif.—p. 86.
*Clinical Demonstration of Iron in Skin in Hemochromatosis. H. R. Fishback, Chicago.—p. 94.
A Ring Test for Urine Bromides. A. Blumstein, Minneapolis, P. M. Zoll and J. J. Mayer, New York.—p. 99.

Fever Therapy and Carbohydrate Metabolism.—Kirstein and Bromberg declare that hyperglycemia during fever therapy is not due to blood concentration but to disturbances in carbohydrate metabolism. This concept may have an important bearing on the preparation of patients for hyperpyrexia, especially diabetic persons. One of the important pathologic factors in diabetes is the tendency toward an increased rate of glycogenolysis in the liver. If any factor which stimulates glycogenolysis (such as artificial fever) is superimposed on this, the result may be excessive hyperglycemia, glycosuria and frequently ketosis. (This may also explain the response of persons with diabetes to infectious fevers.) The vicious process can be combated by means of adequate administration of carbohydrates and by inhibiting the rate of glycogenolysis with insulin.

Iron in Skin in Hemochromatosis.—Fishback outlines a simple test for demonstrating cutaneous iron in hemochromatosis. He mixes equal parts of sterile solutions of 0.5 per cent potassium ferrocyanide and hundredth normal hydrochloric acid and injects the resultant solution intradermally so as to form a wheal. A slight blueness is evident almost immediately, which darkens to a deep blue within five minutes. A narrow red zone appears at the periphery of the wheal in about two days. This persists throughout the slow contraction of the blue test spot until it disappears in about two weeks. The negative test shows a white wheal in which the peripheral red zone develops later and disappears in about the same time as a positive test. There is a sharp stinging sensation with the injection, but it ceases within a few seconds. There is no pain or itching afterward. The skin remains intact without peeling or necrosis. Since diffuse iron deposit occurs only in hemochromatosis, this test would appear to be specific for the disease. In hemochromatosis the test is also positive after death.

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Journal of Neurophysiology, Springfield, Ill.

2: 473-578 (Nov.) 1939. Partial Index

Effects of Acoustic Stimuli on Waking Human Brain. P. A. Davis, Boston.—p. 494.
Electrical Reactions of Human Brain to Auditory Stimulation During Sleep. H. Davis; P. A. Davis, Boston; A. L. Loomis, E. N. Harvey and G. Hobart.—p. 500.
Conditioning of Afferent Impulses by Reflex Discharges Over Dorsal Roots. J. F. Toennies, New York.—p. 515.
Vagal Inhibition of Inspiration and Accompanying Changes of Respiratory Rhythm. T. E. Boyd and C. A. Maaske, Chicago.—p. 533.
Cerebellar Action Potentials in Response to Stimulation of Various Afferent Connections. R. S. Dow, New York.—p. 543.
Effect of Eserine on Spinal Reflexes in Dog. J. K. Merlis and H. Lawson, Louisville, Ky.—p. 566.

Kansas Medical Society Journal, Topeka

40: 405-448 (Oct.) 1939

Injection Treatment of Hernia Based on Study of 528 Cases. A. S. Jackson, Madison, Wis.—p. 405.
Diagnosing Disease Without Instruments of Precision. R. H. Major, Kansas City.—p. 408.
Subjective Cardiac Symptoms and Their Interpretation. J. M. Porter, Concordia.—p. 412.
Superficial Cancer: Skin and Lip. M. Trueheart, Sterling.—p. 419.

Kentucky Medical Journal, Bowling Green

37: 423-462 (Oct.) 1939

Complications of Treatment of Syphilis. F. B. Zimmerman, Greenup.—p. 446.
Extrinsic Antenatal Intestinal Obstruction at Ileum, with Peritonitis. Margaret Hatfield, Louisville.—p. 451.
Pathogenesis of Anemias: Anemia as a Problem for the Internist. H. Gordon, Louisville.—p. 455.

Mental Hygiene, Albany, N. Y.

23: 529-712 (Oct.) 1939. Partial Index

Reorientation of Education to Promotion of Mental Hygiene. L. K. Frank, New York.—p. 529.
Common Emotional Problems Encountered in a College Mental Hygiene Service. H. D. Palmer, Philadelphia.—p. 544.
Psychotherapy for the Poor: State-City Cooperative Enterprise in Field of Mental Hygiene. J. Watson, Worcester, Mass.—p. 558.
Some Comments on Psychopathology of Drug Addiction. R. H. Felix, Lexington, Ky.—p. 567.
Music as Therapeutic Aid in Hospital for Mental Diseases. A. H. Harrington, Howard, R. I.—p. 601.
Selective Mating as Factor in Socio-Economic Inferiority: Study of 3,296 Persons Related by Blood or Marriage to One Institutionalized Individual. W. E. Southwick, Washington, D. C.—p. 620.
*Follow-Up Study of Patients with Dementia Praecox Treated with Insulin in the New York Civil State Hospitals. B. Malzberg, Albany, N. Y.—p. 641.

Dementia Praecox and Insulin.—The condition of 1,039 patients with dementia praecox who received insulin shocks prior to March 1938 is given by Malzberg, who asserts that 134 were reported as recovered after the completion of treatment, 282 were much improved and 263 improved. This makes a total of 679, or 65.4 per cent, who showed some degree of improvement following treatment with insulin. Compared with a corresponding group of patients who received no specific shock therapy, the results obtained were remarkably favorable. Thirteen patients died during the course of treatment. After much shifting in the results of the 134 patients described as recovered at the termination of treatment, only seventy-three were so described at the time of the follow-up (14.4 months after completion of treatment). Of the remainder, twenty-one were much improved, seventeen improved and twenty unimproved. Of the 282 much improved patients, 111 remained in this category; however, forty-three improved to such a degree that they were considered as being recovered. On the other hand, 162 had deteriorated and fifty-five were described as merely improved and sixty-seven as unimproved. Of the 263 who had originally been considered as improved, 116 had deteriorated during the ensuing year. But thirty-eight showed further improvement, eleven of whom were considered recovered. Finally, of the 347 originally deemed as unimproved, five later showed a complete recovery, eleven were much improved and twenty-one were improved. Though some patients showed various degrees of deterioration in their mental status following the termination of insulin therapy, an appreciable total continued to improve, a phenomenon that was observed also by Sakel, who likened it to a process of ripening. Approximately an average of fourteen months after the termination of insulin therapy, 12.9 per cent of the patients were described as recovered and 49 per cent as improved to some degree. There was thus a significant reduction in the percentage of patients who maintained their improved status. Nevertheless the author declares that this percentage is in significant excess of corresponding results among similar patients who did not receive specific shock therapy. Paranoid and catatonic types of patients showed better results than hebephrenic individuals. Patients with a short duration of the disease prior to treatment showed the highest rates of recovery and improvement. Those regarded as recovered and much improved showed the highest rates of discharge and parole and the lowest rates of relapse. Therefore it is evident that to secure the best results it is necessary to institute treatment in the early periods of the disease.

Missouri State Medical Assn. Journal, St. Louis

36: 427-470 (Nov.) 1939

The Male Sex Hormone. W. M. Ketcham, Kansas City.—p. 427.
Pneumoperitoneum, with Unusual Complication. C. J. Mellies, Mount Vernon.—p. 430.
Fibrositis. O. Abel Jr., W. J. Siebert and R. Earp, St. Louis.—p. 435.
Missouri Cancer Survey. P. F. Cole, Springfield.—p. 437.
Removal of Portion of Stomach Tube from Stomach Through Esophagoscope: Report of Case. M. F. Arbuckle and A. C. Stutsman, St. Louis.—p. 441.
Ectopic Decidual Cells. J. G. Sheldon, Kansas City.—p. 441.
Infant Feeding. A. Bleyer, St. Louis.—p. 442.
Common Sense in Pediatric Practice. C. B. Summers, Kansas City.—p. 444.
Sulfanilamide and Complications of Scarlet Fever. H. J. Ulrich and T. R. Young, St. Louis.—p. 445.
Prevention of Pulmonary Tuberculosis. H. L. Mantz, Kansas City.—p. 447.
Symptoms, Signs and Diagnosis of Pulmonary Tuberculosis. J. A. Stucker, Mount Vernon.—p. 450.
Differential Diagnosis of Chronic Pulmonary Diseases. D. W. Myers, St. Louis.—p. 451.
Sanitarium Treatment of Tuberculosis. G. D. Kettelkamp, Koch.—p. 453.
Home Treatment of Pulmonary Tuberculosis. W. M. Kinney, Joplin.—p. 455.
Surgical Procedures in Treatment of Pulmonary Tuberculosis. J. L. Mudd, St. Louis.—p. 457.
Missouri Tuberculosis Association. D. E. Pratt, St. Louis.—p. 459.

New England Journal of Medicine, Boston

221: 633-678 (Oct. 26) 1939

Anterior Pituitary Gland and Diabetes Mellitus. F. G. Young, London, England.—p. 635.
*Gas Bacillus Infection of Abdominal Wall. H. M. Clute and T. J. Anglem, Boston.—p. 647.
Primary Streptococcal Peritonitis: Report of Case Which Developed While the Patient Was Undergoing Sulfanilamide Therapy. T. W. Botsford and T. H. Lanman, Boston.—p. 651.
Laboratory Diagnosis of Encephalitis Due to Equine Virus. P. J. Jakmauh and R. F. Feemster, Boston.—p. 653.
Contagious Diseases. C. Wesselhoeft, Boston.—p. 655.

Gas Bacillus Infection of Abdominal Wall.—Clute and Anglem report two cases of gas bacillus infection of the abdominal wall complicating cecostomy done for obstructing carcinoma of the colon. Both patients recovered after treatment with polyvalent gas bacillus antitoxin. In the first case the simultaneous occurrence of a constricting annular carcinoma of the splenic flexure and a volvulus of the sigmoid were the most significant feature. It constituted virtually a closed intestinal loop, which has been shown to provide optimal conditions for the proliferation of Clostridium welchii. The diagnosis in the fulminating type of infection represented by this case is usually made without difficulty. The process develops with lightning-like rapidity and usually occurs within twenty-four to thirty-six hours after operation. The pulse and temperature rise abruptly and the patient is in a state of severe shock which appears out of proportion to the local observations. There is generally delirium and there is severe pain referred to the wound. The local observations, the coppery red discoloration of the skin, the crepitation and the marked tenderness on palpation are classic. The second patient, who had a carcinoma of the transverse colon, underwent a purse-string type of cecostomy. The patient's convalescence was entirely without incident until the seventh postoperative day, when the temperature rose to 102 F. and the pulse to 115. On the following morning the discoloration had taken on the coppery red color characteristic of Clostridium welchii infection. Crepitus, which could be heard with a stethoscope, was present in the tissues all about the incision. The report on the culture was somewhat equivocal. Nevertheless the clinical features of the disease, while not so fulminant as in the first

case, were so clearcut and definite that the authors had no doubt whatever that it represented a gas bacillus infection of the abdominal wall. The successful treatment of gas bacillus infection is dependent on early recognition and immediate institution of therapeutic measures. The rarity of this type of infection as a complication of abdominal surgery may lead to confusion and failure to establish the diagnosis. Delay may be fatal. If there is suspicion of gas bacillus infection, smears and cultures should be made at once. While waiting for culture reports, however, active treatment should be instituted at once of any patient who is suspected of having gas bacillus infection. The wound must be widely and freely opened by removing the skin and fascial sutures. In each of the reported cases only the peritoneal suture line was left intact after the wounds were opened. Dressings wet with hydrogen peroxide may be applied to the wounds and should be kept saturated with this solution. The authors relied almost entirely on the use of large amounts of polyvalent gas bacillus antitoxin with excellent results. In early 1937 sulfanilamide had not been proved beneficial in gas bacillus infection and it was not used. Today it would be used but the authors think that the antitoxin should be used as well. In the fulminating type of infection they administer daily by intravenous injection from three to four ampules (from 90 to 120 cc.) of antitoxin. This is continued until the infection is under control. It may be necessary to continue treatment for seven days or longer. In the milder cases the dosage of antitoxin may be from two to three ampules (60 to 90 cc.) daily.

Southwestern Medicine, El Paso, Texas

23: 319-352 (Oct.) 1939

Carcinoma of Colon (Other Than the Rectum). E. P. Palmer, Phoenix, Ariz.—p. 319.
Recent Advances in Medicine. C. D. Awe, El Paso, Texas.—p. 322.
Allergy and Pseudoallergy in General Practice. R. W. Lamson, Los Angeles.—p. 325.
*Sulfapyridine in Treatment of Thirty Cases of Pneumonia. J. M. Rawlings, El Paso, Texas, and L. Hamilton, Artesia, N. M.—p. 329.
Impaired Nasal Ventilation in the Adult. L. F. Morrison, San Francisco.—p. 333.
Common Dermatoses. N. P. Anderson, Los Angeles.—p. 336.

Sulfapyridine for Pneumonia.—Rawlings and Hamilton report the results obtained in six cases of bronchial and twenty-four cases of lobar pneumonia following treatment with sulfapyridine. There were two deaths; in both, tuberculosis was a complication. Other aids in addition to sulfapyridine were used when it was felt that they would be of value. In addition to the drug, oxygen was given to seventeen patients, transfusions to seven and serum to four. Four fifths of the patients had complications of varying grades. The average dose of sulfapyridine was 39.19 Gm., but for the mild cases showing minimal complications it was 22.11 Gm. Leukocyte counts were extremely helpful in following the condition of the patients, and when there was any indication that the counts were low and the patient's condition not otherwise good, transfusions and serum were used. One danger resulting from the use of the drug, in addition to the gastric disturbance, is seemingly an evident depression of the formation of erythrocytes or their destruction. By blood culture or sputum typing, twenty-eight of the thirty cases of pneumococcic pneumonia were proved. Of these proved cases recovery occurred in all but one, giving a final mortality of but 3.93 per cent of the proved cases. The authors state that the only untoward result in their cases was the presence of a definite anemia in seven. They conclude that patients with lobar or bronchial pneumonia whose prognosis has heretofore been considered completely hopeless by older methods of treatment can, by the combined use of their six measures, have a much greater likelihood of living. These measures consist of early use of sulfapyridine, oxygen when the temperature is 101.5 F. or more, a pulse of more than 120 and respirations over twenty-four per minute, adequate use of dextrose and saline solution when indicated, digitalization of all heart failures, serum in large amounts in all critical cases, and adequate use of transfusions when anemia is present. Two other general procedures that should not be neglected are the use of liver extract in cases of leukopenia and ascorbic acid, thiamin chloride, riboflavin and small amounts of nicotinic acid in many of the borderline avitaminoses or when general bodily metabolism is not optimal.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

23: 649-696 (Oct.) 1939

*Familial Primary Glaucoma in Adults. A. H. Briggs.—p. 649.
Iritis (White Eye) in Fowls. J. E. R. McDonagh, account of histologic changes by E. Wolff.—p. 659.
Note on Phlyctenular Ophthalmia. J. Barrett.—p. 669.
Resection of Anterior Staphyloma of Cornea by Means of Gradual Incision. N. I. Shimkin.—p. 671.

Familial Primary Glaucoma in Adults.—Briggs has encountered two families in which simple glaucoma appears to be a familial condition. The mechanism by which the hereditary influence acts is unknown; defective development of the angle of the anterior chamber seems to be the most probable cause, but statistics suggest that the causes of buphthalmia, hereditary glaucoma and nonhereditary glaucoma are separate and distinct. There seems to be no association between hereditary primary glaucoma and buphthalmia. There is little evidence to support the suggestion that hereditary glaucoma is due to some degree of congenital microphthalmia with a disproportionately large lens. The first family that the author describes was probably affected through three generations, but no cases have yet been discovered in the fourth, although, curiously enough, several members of the fourth generation have defective sight. The three patients of the fourth generation who have come under observation have been found to be suffering from quite unrelated disorders of the eyes and to show no sign of glaucoma. Of eleven legitimate children of the third generation, two died in infancy; of the remaining nine, three were certainly glaucomatous and two more suffered from optic defects which were probably glaucoma; two more had defective sight which may have been due to glaucoma, and two were unaffected. One of the two unaffected members died at the age of 24, too early for the condition to be ascertained. In one member of this family a spontaneous choroidal detachment developed about three months after sclerocorneal trephining, and this persisted unchanged for a year. It was (unsuccessfully) treated by a cautery puncture and is still present. The second family comprises ten siblings, one of whom died in infancy. Of the nine living siblings, eight are said to be glaucomatous and six have been examined. Of these, five were glaucomatous and one was unaffected.

British Journal of Radiology, London

12: 569-600 (Oct.) 1939

Radiology of Third and Fourth Ventricles: Part II. E. W. Twining.—p. 569.

British Medical Journal, London

2: 795-840 (Oct. 21) 1939

Treatment of Closed Fractures of Radius and Ulna. St. J. D. Buxton.—p. 795.
Clinical Significance of Tubercle Bacilli in Urine. C. E. Dukes.—p. 799.
Psychologic Aspect of Rearmament Program. S. B. Hall.—p. 801.
*Does Poliomyelitis Affect Intellectual Capacity? Investigation on Ninety-Eight Cases. R. G. Gordon, J. A. F. Roberts and Ruth Griffiths.—p. 803.
Prevention of Defaulting from Venereal Disease Treatment Centers. C. H. Wilkie.—p. 805.

Poliomyelitis and Intellectual Capacity.—Gordon and his colleagues determined the intelligence quotients, by the Stanford-Binet scale, of ninety-eight children from 4 to 16 years of age under treatment for acute anterior poliomyelitis or its residual effects. In some of these children the onset of the disease occurred several years before the tests were applied. The mean intelligence quotient of the group was 103.91, with a standard deviation of 15.89. In comparison with a random group of normal school children whose mean intelligence quotient was 98.8 and standard deviation 15.2 it is seen that the mean performance of children who are suffering or have suffered from poliomyelitis does not fall below the performance of a random group of normal children drawn from the general population. A more precise examination showed that the distribution of intelligence quotients did not show any significant departure from what would be expected on the basis of the normal curve. The result was what would be obtained from a sample of similar size drawn from the general population. Therefore it can be concluded that children who suffer from poliomyelitis give just the same average results as do ordinary normal children and

that the variability of the results also (their spread and range) is that of a normal group. The mean intelligence quotient of the forty-six girls was 102.1 and of the fifty-two boys 105.5. The difference is not statistically significant. Neither was there any association between the intelligence quotient and the age of onset of the disease, the interval between onset of the disease and the performance of the test or the occurrence of clinically recognizable cerebral symptoms at the onset of the disease.

Edinburgh Medical Journal

46: 613-668 (Oct.) 1939

Care and Cure of the Crippled Child in the Southeast of Scotland. W. A. Cochrane.—p. 613.
*Microscopic Inquiry into Etiology of Poliomyelitis with Note on Chronic Encephalitis Lethargica. A. C. Coles.—p. 627.
Cancer of Mouth and Jaws. J. J. M. Shaw.—p. 639.
Occurrence of Different Groups of Hemolytic Streptococci in Human Infections. Helen M. Gardner.—p. 648.

Poliomyelitis and Chronic Lethargic Encephalitis.—In examining microscopic films of the cord, brain, lymph glands, spleen and other organs of human beings and monkeys with acute poliomyelitis, Coles found certain microscopic structures which are not normally present. Small sporelike organisms staining blue with Giemsa stain and varying in size from almost invisible bodies to those from 3 to 5 microns or more in diameter were found in the cord, brain, lymph glands and heart blood of infected monkeys and in the cord and brain of human subjects. Many of the larger forms have more deeply stained spots in their interior as if they were undergoing development. Somewhat similar blue-stained spores were found in films from the nasopharynx. The same bodies were present in many of the capillaries of the cord and brain of human and animal subjects. Cystlike bodies, staining red with Giemsa stain, measured on an average from 3 to 6 microns and showed evidence of some internal structure. Intracellular Negri-like bodies measuring from 1 to 14 microns were found in the cord and brain of human beings and monkeys. Films of the cord and brain of two subjects with acute poliencephalomyelitis showed all the forms seen in acute poliomyelitis, but in comparatively smaller numbers. In preparations from the brain of a subject with chronic lethargic encephalitis, all these structures were present and the blue-stained sporelike bodies, both free and intracapillary, were numerous. These films were practically indistinguishable, from a morphologic point of view, from those of poliomyelitis. In films of the infective filtrates of the cord suspension of three monkeys with poliomyelitis, extremely small, round or oval, well defined elementary bodies measuring from 0.15 to 0.2 or 0.3 micron were present. These stained a reddish color and occurred in almost pure cultures. It seems highly probable to the author that these elementary bodies are the actual causal virus of poliomyelitis. It is possible that the sporelike, cystlike and intracellular bodies are stages in the development of an organism which in its final stage is a filtrable body.

Lancet, London

2: 817-864 (Oct. 14) 1939

Bacteriology of Rheumatic Fever. W. R. F. Collis.—p. 817.
*Testosterone Propionate in Chronic Mastitis. A. W. Spence.—p. 820.
Dissemination of Infection in School Dormitories. F. G. Hobson.—p. 823.
Stomatitis of Dietary Origin. W. R. Aykroyd, B. G. Krishnan and R. Passmore.—p. 825.
*Effect of Prolactin on Lactation in Nursing Women. M. Kenny and E. King, with notes on preparation of prolactin by N. Evers and W. J. Hurran.—p. 828.
Blood Grouping Technic with Test for Syphilis. A. H. Walters.—p. 831.

Testosterone Propionate in Chronic Mastitis.—Spence reports observations on twenty-four patients with painful breasts and so-called chronic mastitis. In view of the pronounced psychologic element in the genesis of mammary pain, all patients were first treated with intramuscular injections of sterile olive oil as a placebo twice a week for several weeks. Thirteen patients had a dramatic improvement in the pain, whether it was continuous or not. Four patients thus improved had a fairly large lump in the breast. A large nodular mass in the right breast of one patient disappeared during the control period of three months. Had she been receiving testosterone, the improvement in the breast would have been ascribed to this. To eight patients with no lumps whose pain was completely or greatly relieved with olive oil, no further treatment was given. To sixteen patients whose breasts contained a lump or whose pain was not relieved by olive oil, intramuscular injections of testosterone propionate were given twice or three times a week. The dose employed for most patients at first was 25 mg. twice a week. If the response to this after a few weeks was unsatisfactory, the dose was increased to 50 mg. twice a week and later for some to 100 mg. twice or three times a week. Treatment was continued for various periods, depending on the response. There was thus a considerable variation in the total dosage, some patients receiving only from 100 to 500 mg. and others as much as from 2,000 to nearly 3,000 mg. Fourteen of the sixteen patients had relief from pain. Twelve patients treated had lumps in the breast; the lumps of three disappeared, but for two of these spontaneous disappearance could not be excluded, and for one 2,925 mg. in five months was required, resulting in hypertrophy of the clitoris and extreme atrophy of the endometrium. Five patients had some reduction in the size of the nodules. Of two who were not improved, fresh nodules appeared in the breast during treatment. Menstruation of seven patients receiving the larger doses was suppressed. Five of the younger patients had and increased growth of hair, four with comparatively small doses, but this was not observed in older patients receiving much larger doses. It is emphasized that because of this complication and the undesirability of prolonged atrophy of the endometrium, testosterone propionate should be used with caution for women.

Prolactin for Nursing Women.—In the experiments described by Kenny and King two preparations of prolactin, one from ox pituitary and the other from sheep, were administered to forty-three women during the period of lactation. The women were selected as deficient in milk secretion at different stages of this period up to the third month. In three cases milk secretion was absent until administration of prolactin was begun on the ninth or tenth day after delivery. All cases were followed up for at least three months and most for six or seven months. The response to administration was classified as positive, partial or negative. A positive response indicated that the increase in milk secretion was maintained at over 3 ounces (100 cc.) a day. A partial response indicated an increased yield of from 1½ to 3 ounces (50 to 100 cc.) of milk a day, or a larger yield which was not maintained when the injections of prolactin were stopped. An increase of less than 1½ ounces (50 cc.) was classified as a negative response, a failure. Prolactin was given in the early stages of the period of lactation, when clinical experience or the past history indicated that the patient would probably not have sufficient milk. In the later weeks deficiency or decrease in lactation was treated. At present it is the practice of the authors to begin treatment as early as possible, so that efficient nursing may be established before discharge from the hospital. They employed a total dosage of 15 cc. (900 Riddle units) of prolactin in each case, spread over five days, thus: first and second days 5 cc. daily, third and fourth days 2 cc. daily, and fifth day 1 cc. The quantity was given by the intramuscular route into the buttock or arm. To a few neurotic women an injection of sterile saline solution 2 cc. was given forty-eight hours before the start of treatment with prolactin. This suggestion therapy did not evoke a response in any case. In the dosage described, the extracts appear to have no systemic or local ill effect. Dextrose tolerance tests have not shown any departures from those of control lactating women. Depression of the gonadotropic function has not been observed. The quality of the milk secreted after administration of the extracts is essentially the same as that of control samples. About the effect on the lactation, the authors say that in three fourths of the women with deficient lactation in the first eight weeks of the lactation period satisfactory nursing was induced with prolactin. A further few cases showed only a temporary or moderate increase of milk secretion after the administration of prolactin and in 19 per cent there was either a small increase or none at all.

Medical Journal of Australia, Sydney

2: 491-528 (Sept. 30) 1939

Pathology of Coronary Ischemia. T. E. Lowe.—p. 491.
Some Practical Considerations in Coronary Occlusion. G. A. Penington.—p. 501.

2: 529-560 (Oct. 7) 1939

Wounds of the Hand. A. Aspinall.—p. 529.
Treatment of Wounds of the Hand. L. Teece.—p. 532.
Anatomy in Surgery. H. R. G. Poate.—p. 534.
Gallstones and Their Complications. H. Bullock.—p. 541.

Presse Médicale, Paris

47: 1413-1436 (Oct. 18) 1939

Treatment of Open Diaphyseal Fractures from War Wounds. P. Mathieu.—p. 1413.
Symptoms of Ordinary Ascites. J. P. Urioste, R. A. Caimi and R. A. Piaggio Blanco.—p. 1414.
Roentgen Therapy in Infectious Diseases. J. Surmont and P. le Goff.—p. 1417.
*Therapies Employed in Hemogenia: Value of Roentgen Therapy. M. Lévy and L. Gally.—p. 1420.

Roentgen Therapy of Spleen in Hemogenia.—Lévy and Gally appraise the therapeutic managements at present employed in hemogenia, such as splenectomy and various treatments of a nonsurgical character. They select four of their twenty-eight cases, in which roentgen treatment was successfully instituted, for special discussion. The four women with age level between 26 and 49 manifested a hemorrhagic diathesis in epistaxis and menorrhagias, accompanied with ecchymosis in one case. The bleeding time indicated was between four and one half and forty-five minutes, the clotting time between eighteen and twenty-six minutes. The treatments varied from a total of 870 roentgens to a total of 4,500. The curative results achieved included hemostasis at the nose, gums and skin, reduction of the bleeding time from eight to one and one half minutes in one case and clotting time from eighteen minutes to six minutes in another and normalization of the menstrual flow in one case after the first application of 250 roentgens. One patient, examined after two years, had had a normal pregnancy and delivery. The authors think that the negative results reported by others for roentgen therapy are due to several factors: (1) insufficient dosage (in one case a total of 200 roentgens was reported), (2) inattention to individual sensitivity variations (in one case a cure may be effected by 250 roentgens whereas another may require 1,500 and more) and (3) failure to recognize that the whole reticulo-endothelial system may be involved, not merely the spleen. The authors consider their clinical results satisfactory. In their most serious case hemostasis persisted after five years. The erythrocytic counts became normal without antianemic medication. They reject splenectomy in benign and acute cases because of the high immediate or delayed mortality and the recidivations due to surgery, some brilliant operative achievements notwithstanding. They recommend the application of roentgen therapy not only to the spleen but to the whole reticulo-endothelial system, especially the areas rich in ganglions, such as the inguinal and axillary, since hyperfunction of the spleen may be secondary to hyperfunction of the reticulo-endothelial system. The systematic use of roentgen therapy in benign cases may constitute a prophylaxis against further evolution and make operation unnecessary.

Gastroenterologia, Basel

64: 177-258 (Sept.) 1939

Case of Sprue. R. M. Tecon.—p. 177.
Roentgenogram of Small Intestine in Nontropical Sprue. M. Lüdin.—p. 191.
Criticism of Internal Therapy of Ulcer. H. Stalder.—p. 198.
*Hyperazotemia in Digestive Hemorrhages. M. Demole and J. Neeser.—p. 208.
Reasons for Employment of Electromagnetic Waves in Gastro-Enterologic Surgery. H. Paschoud.—p. 226.

Hyperazotemia in Digestive Hemorrhages.—Demole and Neeser say that it was Sanguinetti who in 1933 first called attention to the appearance of uremia following gastrointestinal hemorrhages. In view of the fact that the increase in the urea content of the blood is slight after intestinal hemorrhages, the authors prefer the term "hyperazotemia" to uremia. They investigated this condition in a series of fifty cases. They found that digestive hemorrhages provoke an elevation in the urea content of the blood in three of four cases. This hyperazotemia is mild; it appears early and is not lasting. It is accompanied by a strong augmentation of the urinary secretion of urea and by hypochloruria, whereas the chlorides of the blood vary hardly at all. It does not seem to have an unfavorable clinical significance. It does not indicate an unfavorable prognosis. It has no direct relationship to the abundance of the loss of blood, the degree of anemia or the nature of the causal lesion. Among the factors that have been invoked to explain the hyperazotemia that follows digestive hemorrhages, chloropenia can be excluded. The tissular disintegration consecutive to fasting for one part and purely functional renal disturbances for another part assume an occasional or a supporting role but are always secondary. The resorption of the blood poured into the intestine is certainly the chief cause of the hyperazotemia. The authors show that the arguments in opposition to this theory are refuted by clinical and experimental evidence. In hematemesis, when nearly all the blood is expelled through the mouth, the urea content of the blood is rarely elevated; however, in melena, when the blood remains for some time in the intestine, hyperazotemia develops in five of six cases.

Bullettino delle Scienze Mediche, Bologna

111: 313-436 (Sept.) 1939. Partial Index

Passage of Action of Local Anesthesia from Reversibility to Functional Irreversibility: Therapeutic Study. A. Donaggio.—p. 363.
*Pyelography in Diagnosis of Extrarenal Abdominal Tumors. L. Guardabassi.—p. 384.
Treatment of Pneumonia and Bronchopneumonia by 2-(Para-Aminophenylsulfamide) Pyridine. I. Cugnini.—p. 387.

Pyelography in Extrarenal Abdominal Tumors.—Guardabassi discusses the value of pyelography in the diagnosis of extrarenal abdominal tumors in twenty-seven cases. Outward lateral displacements of the kidney are caused by paravertebral tumors (abscess, aneurysm of the aorta and tumors of the lumbotracheal lymph nodes) as well as by tumors of the adrenal capsule. Medial displacements of the structure are rare. Only one case was observed in the group of cases reported. It was a case of metastasis of the renal region from cancer of the uterus. Downward displacements of the kidney are caused by tumors which are located in structures near the upper zone of the renal cavity, namely adrenal tumors or ecchinococcal cysts, retroperitoneal or at the root of the mesentery. They may also be caused by tumors of the spleen and the liver, if acute splenomegaly or hepatomegaly exists. Upward displacements of the kidney are rare. They may be caused by certain retroperitoneal tumors. Backward displacements are caused by large abdominal tumors (paravertebral cystofibrosarcoma, dermoid cysts of the ovary and large tumors of the liver). Outward frontal displacement is rare. No case of the type was seen in the group reported by the author. The ureters may be displaced by retroperitoneal tumors only, which are those displacing either the structure or the kidney more frequently than any other extrarenal abdominal tumor. Intraperitoneal tumors compress the ureters without displacing them. Displacement of the pelvis is rare. It was observed in only one case of twelve cases of intraperitoneal abdominal tumors in the group of cases reported by the author. It was a case of retroperitoneal metastases from a large ovarian cystosarcoma. The most frequent morphologic alteration of the urinary tract from extrarenal abdominal tumors is a more or less acute dilatation of the pelvis and ureters from tumoral compression or else by propagation of the tumor or by metastases.

Lattante, Parma

10: 519-566 (Sept.) 1939. Partial Index

*Pathogenesis of Infantile Tetany. A. Dordi.—p. 527.
Medical Treatment of Acute Anterior Poliomyelitis. P. Tolentino.—p. 536.

Infantile Tetany.—Dordi discusses the pathogenesis of infantile tetany, with especial reference to the role of increased guanidinemia. Because of the fact that infantile tetany is often associated with spasmophilia, the author followed the behavior of guanidine in the blood of nine infants who were suffering from infantile tetany with or without rickets but uncomplicated by any other disease. He also followed the behavior of the electrolytes in the blood. The diagnosis of spasmophilia in the cases reported by the author was made by (1) the clinical symptoms, (2) the results of the electrical stimulation of the median nerve and (3) the verification of the presence of hypocalcemia. The author found that when the determinations of the substances in the blood were made during actual tetany the amount of guanidine in the blood was normal, that of calcium was diminished and that of potassium was moderately increased. When the determinations were made after recovery of the patients, the amount of guanidine in the blood had remained unchanged, whereas those of calcium and potassium had returned to normal. The author believes that an increased amount of guanidine in the blood in the course of certain diseases in chil-

dren may be the cause of tetanoid symptoms complicating the disease. However, it is not the pathogenic agent of infantile tetany which is caused by a rupture of the equilibrium of the electrolytes in the blood (hypocalcemia in infantile tetany and hyperpotassemia in experimental guanidine tetany).

Deutsches Archiv für klinische Medizin, Berlin

184: 489-636 (Aug. 30) 1939. Partial Index

Late Effects of Amputations on Whole Organism: 1. Amputations and Body Weight. C. E. Schuntermann.—p. 489.
*Hereditary Fibrinopenia. G. Schönholzer.—p. 496.
Casuistics of Spontaneous Hypoglycemia. K. T. Tenner.—p. 511.
Eosinophilia in Splenomegaly. J. Cremer.—p. 519.
Granulocytopenia. S. Thaddea and D. Bakalos.—p. 530.
Elimination of Ascorbic Acid in Thyrotoxicosis. L. Norviit.—p. 562.
Movements of Diaphragm and Thorax After Deepest Inspiration and Expiration. A. J. Anthony and M. Broglie.—p. 627.

Hereditary Fibrinopenia.—Schönholzer's patient, a boy of clinically healthy parents, was first hospitalized for serious epistaxis when about 12 years of age. He was rehospitalized twice during a period extending over more than three and one-half years and finally died of a severe pulmonary edema. Anamnesis disclosed umbilical hemorrhage at birth lasting twelve days, a fall when 2 years old that injured his head and caused an enormous subcutaneous hematoma and since then a persistent tendency to bleeding, especially at the gums on tooth extraction. At his first hospitalization, tamponage and a blood transfusion of 600 cc. were immediately effective and his recovery from serious anemia, as the result of appropriate medication, rapid. He was rehospitalized one and one-half years after for pronounced anemia and severe pain in the left side of the thorax and in the stomach. A large blood effusion in the left pleura was discovered. A blood transfusion of 350 cc. was at once made. A subsequent pleural puncture showed almost pure sterile blood. Treatments for anemia were resumed and made possible his discharge. Several months later a special hematologic analysis was undertaken. No trace of fibrin formation was discoverable even after forty-eight hours and neither blood nor plasma would clot in the test tube. The patient was hospitalized for the third time about two years subsequently. Increasing fatigue, pallor, slight nasal and pharyngeal hemorrhages and a comatose condition were noted. The analysis of the blood albumin indicated the complete absence of fibrinogen in spite of various tests. Blood clotting was attained only on heating at 165.2 F. Sternal puncture performed immediately after the patient's death revealed a large decrease of plasma cells and a large increase of reticular cells. Necropsy showed a clinical picture of extensive intracranial bleedings and a huge epidural hematoma. Among the thirty-nine family members traced by the author, the following familial facts are brought out: A sister of the patient died seventeen days after birth from uncontrollable umbilical hemorrhage; another sister aged 15, while clinically healthy, was found to have a blood clotting time of twenty-one minutes and a fibrinogen level of 0.13; a maternal grandfather had a lifelong hemorrhagic diathesis, especially of the gums, and, like his sister, died of apoplexy. The other blood relatives examined were normal; for those who could not be examined a normal anamnesis was reported. In his discussion of hereditary fibrinopenia, the author distinguishes between fibrinogen deficiency (fibrinopenia) and fibrinogen absence (afibremia), the latter represented by this case. The former disease is compatible with a normal life. Predisposition to bleeding is slight and clotting time nearly or altogether normal. A congenital tendency to fibrinopenia, however, is recognizable on further examination as hereditary. The second disease, an exacerbation of the former, invariably occurs in children and its prognosis is unfavorable. The disease is characterized by a complete absence of fibrinogens in the plasma and the consequent incoagulability of the blood. Etiologically the author considers the bone marrow chiefly, though not exclusively, implicated. The significance of plasma cell involvement needs, he says, further investigation. Activation of congenital hemorrhagic diathesis is attributable chiefly to traumas that need only be slight. However, multiple bleedings suggest the implication of the vascular system, perhaps under the influence of intercurrent infections. The author thinks that the facts point to a recessive heredity of an intermediate kind that is not sex limited.

Wiener klinische Wochenschrift, Vienna

52: 825-856 (Sept. 8) 1939. Partial Index

Prevention of Tuberculosis from Standpoint of Pediatrician. K. Dietl.—p. 827.
Fate of Prematurely Born Children. T. Kernan.—p. 834.
Diagnosis of Acute Appendicitis in Children. H. Koch.—p. 836.
Cirrhosis of Liver in Early Childhood. R. Priesel and F. Schuler.—p. 840.
*Protective Inoculations Against Diphtheria and Schick Test. Thea Steinhardt.—p. 843.

Diphtheria Inoculations and the Schick Test.—Steinhardt reports the results of several years' experiments with protective inoculations against diphtheria and the reliability of the Schick test. The experiments were carried out in several series. Of 151 Schick positive children injected with 1 cc. of alum toxoid, seventy (46 per cent) became Schick negative, fifty-five in from two to five and fifteen in from six to eight weeks. During this period, eighty-one (54 per cent) remained Schick positive. Reexamination by the Jensen method of forty-six of the seventy Schick negative children from eight to ten months later disclosed that 80 per cent had an antitoxin titer of over 0.01 and 20 per cent a titer under this figure. Simultaneous examination of the eighty-one children remaining Schick positive disclosed that 47 per cent became Schick negative without having diphtheria or becoming immunized in the meantime. In another series of experiments, sixty-eight Schick positive children with titer under 0.0005 were injected with 1 cc. of alum toxoid. Eighty-three per cent showed increase over this figure in from four to five weeks, but only 67 per cent showed increase over the figure of 0.01. Examination of twenty-one of the sixty-eight children from eight to ten months later disclosed that only two of the children had a decreased titer to under 0.01 and in eleven children there was a further increase of titer. Children with titers over 0.0005 displayed enormous increase of titer following the injection. The antitoxin titer of twenty-eight of these children was again examined from one and a half to two years later, this time according to the intracutaneous method of Römer on guinea pigs, and in only fourteen cases (50 per cent) was the Schick standard set at 0.01 attained. In all, 301 Schick reactions were carried out and the percentage of error was about 7 per cent. Schick tests with decreased doses of toxin gave no practicable results. The author is in favor of immunization and recommends it at the age of from 10 to 11 months at the time of vaccination against smallpox. He likewise recommends a second injection from eight to ten months after the first.

Ugeskrift for Læger, Copenhagen

101: 1097-1130 (Sept. 21) 1939

Traffic Accidents. T. Eiken.—p. 1097.
Oxygen Treatment of Gas Intoxication. N. R. Christofferssen.—p. 1105.
Vaccine Treatment of Chancroid and Inguinal Buboes. Mildrid Andersen.—p. 1107.
*Sulfanilamide Treatment of Chancroid and Accompanying Buboes. A. Kristjansen.—p. 1109.
"Alttuberculin" and Purified Tuberculin: Standardization; Preparation of Solutions with Keeping Qualities. K. A. Jensen, G. Bindslev, K. Schultz Møller, A. Hansen and P. Lind.—p. 1112.
Apparatus for Mechanical Artificial Respiration. A. C. Andersen.—p. 1116.
Tests of Vision for Seamen. F. E. Reymann.—p. 1118.
Case of Myelomatosis. N. Swith.—p. 1119.

Sulfanilamide for Chancroid and Accompanying Buboes.—Kristjansen says that after one series of treatments (13.5 Gm. of sulfanilamide) nine of twelve cases of chancroid were cured in from eight to ten days and there was no recurrence; two of the cases were complicated with buboes. The infection at the start of treatment was from seventeen to 105 days old. In one instance a second series of treatments after an interval of two weeks was effective; the complicating bubo was healed during the first series. In one case, with infection five months old, supplementary treatment with iodoform was necessary, and in one case, with infection three weeks old, complicated with a large bubo resistant to sulfanilamide four injections of dmelcos vaccine resulted in healing without perforation. The by-effects of the treatment were slight; in two cases there were nausea and headache which did not necessitate interruption of the treatment. The average length of hospitalization was 20.3 days, as against an average of 35.3 days for the twelve patients with chancroid treated immediately before the introduction of streptamide.

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How to Elicit and Evaluate the Patient's Complaint

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My purpose in this discussion is to help the physician, especially the recently graduated one, to acquire effective methods of attacking a clinical problem and, by specific and concrete suggestions concerning the art and science of history taking, to enable him to acquire this ability more quickly than he might otherwise acquire it.

The medical student is introduced to the subject of history taking by memorizing a list of questions which he will put to his patients. These questions have to do with all the symptoms which may manifest themselves in all parts of the human body during a lifetime. Early in his medical practice, however, he learns that the patient's answers to these questions do not necessarily constitute an accurate or diagnostically helpful clinical history.

OBJECTIVES

In eliciting a clinical history there are three main objectives which a physician should strive to attain: First, from the data that the patient gives he must be able to cull the significant facts which, when developed into a history, may lead to a correct diagnosis. In order to be able to do this he must know well the symptoms of all the diseases to which mankind is subject. The man who is an expert at detecting counterfeit money acquires this ability by becoming thoroughly familiar with all characteristics of the genuine. So the man who is to evaluate properly a patient's complaints must be familiar with those symptoms which indicate organic disease so that he may be able to recognize those which do not.

Second, he must strive to develop speed in taking histories. In the practice of medicine as in any other profession, while accuracy in observation and judgment is absolutely essential the element of conservation of time also is of great practical importance. This is especially obvious in group practice, in which the slowness of one physician increases the load which the other members of the group must sustain. Speed must not be attained at the expense of accuracy, but with practice both can be achieved.

Third, he must strive to please each patient. Patients vary greatly as to their emotional stability, intellectual capacity, keenness of perception and general reaction to the questioning and examination which enable the physician to make a diagnosis. One patient may respond intelligently to, while another patient may be affronted by, the same question put to the two patients in the same courteous way. Therefore the physician must develop an extreme amount of mental flexibility so that he may be able not only to discern quickly the type of personality with which he has to deal but also to put his questions in a way best suited to that personality.

Having considered the three main objectives to be achieved in eliciting a clinical history, let us consider methods by which their attainment is made possible. The assault on any clinical problem can be carried out advantageously in three stages, preferably in the following order: first, eliciting the patient's major complaint and all data pertinent thereto, jotting down notes concerning the significant facts; second, examining the patient while inquiring concerning symptoms referable to all parts of the body other than those discussed in the major complaint; third, composing the clinical history and recording it together with physical observations. These stages will be discussed in the order noted.

FOUR IMPORTANT QUESTIONS

The manner of the physician's approach to patients is of great importance. His attitude should be kindly, disarming, gentle, sympathetic, unhurried, self confident but not arrogant, and free from any trace of brusqueness. He should not make a mental diagnosis of their ailments immediately on meeting them, for they are quick to sense and resent a physician's preconceived ideas about their

From the Division of Medicine, the Mayo Clinic.

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symptoms. The physician's approach may inspire patients with confidence and put them completely at ease, or it may arouse a combative spirit which may result in a mental barrier between them and himself that cannot easily be broken down. Kilgore [1] summarized the problem well when he stated that the physician's approach should be intellectual rather than mechanical.

THE FIRST QUESTION

Physicians have various ways of putting their first question to patients. Introductory inquiries commonly employed are "Why do you come to me for an examination?" "What bothers you?" In my experience these questions not infrequently result in one of the following replies: "To find out what's wrong with me"; "That's what I came to you to find out," or "That's what I'd like to know." I prefer an initial question which gives patients no option in replying but to give the information desired. My favorite is "In what way have you been suffering that made you decide to seek medical counsel?" The question "Of what do you complain?" also may persuade the patient to relate significant symptoms. Next, one should ascertain the duration of the major complaint. If it is of considerable duration, an important follow-up question is "What made you decide to come just now?" This often yields most useful information so far as getting the proper perspective of the problem as a whole is concerned. For example, a patient gives pain in the precordial area of two years' duration as a major complaint, but the factor that crystallized his decision to come for an examination when he did come was that his family physician had recommended it because of his diagnosis of angina pectoris. Another patient gives as his major complaint attacks of epigastric pain of fifteen years' duration which are characteristic of the pain of duodenal ulcer, but the factor that crystallized his decision to go to the physician when he did go was a gastrointestinal hemorrhage four weeks previously. Another patient comes when he did because his symptoms had been getting progressively worse, another simply because it was a convenient time to get away from his work and not because of any recent change in symptomatology. Yet another patient gives constant pain in the lower part of the back following a blow in that region five years previously as a major complaint, but the threat of discontinuance of compensation may have crystallized his decision to come, although he won't give this information without tactful questioning.

Another fact which should be established early in the process of eliciting a clinical history in order that the symptoms may be evaluated properly is whether or not there has been any disability. A patient may complain bitterly of pain, yet when asked if it keeps him from work he may admit that he does work in spite of it. The question that I prefer is "How long have you been unable to carry on your usual activities because of your pain?" or because of whatever symptom it may be of which the patient chiefly complains.

Having established the patient's main complaint and its approximate duration, the factor that made him decide to seek medical counsel when he did seek it, and the presence or absence of disability, one should encourage the patient to describe his symptoms in detail in his own words. The factual data gathered thereby may or may not be of great value but the manner in which the patient relates his symptoms can be, and often is, of considerable diagnostic importance in separating functional from organic disease.

Ward [2] has stated that the greater the number of symptoms of which the patient complains and the more complete the details with which they are described and presented, the more likely is their origin to be neurotic. Stated in another way, the longer the clinical history, the greater the probability that the symptoms are of functional origin.

When patients describe their symptoms with hyperbolic adjectives, the importance and significance of symptoms so described are greatly lessened. Ward points out that the patient with an agonizing headache one day may have an excruciating abdominal pain one week later and in another week may have a terrible pain in the foot. It should be emphasized that patients with organic disease usually present their symptoms in a simple manner unembellished with superlative adjectives.

It is common knowledge that the patient who brings several sheets of paper on which he has recorded all his symptoms so that he will be sure not to forget any of them almost certainly is suffering from functional disease.

CHRONOLOGY

In order for a history to have diagnostic value, the symptoms must be detailed in chronologic order. This is of equal importance whether the symptoms are due to functional or to organic disease. Polak [3] stated that sequence of symptoms makes diagnosis. J. B. Murphy [3] wrote that, in 2,000 cases of appendicitis, sequence of symptoms gave positive diagnosis in 1,998. For example, a woman 24 years of age presented as a major complaint jaundice of two years' duration. Inquiry as to sequence of events

1. Kilgore, E. S.: Clinical Records: A Criticism of the Present Vogue, J. A. M. A. 97: 93-95 (July 11) 1931.

2. Ward, Ernest: Clinical Histories, Clin. J. 65: 338-345 (Aug.) 1936.

3. Quoted by Nix, J. T.: How Can Scientific Clinical Records Be Assured? Bull. Am. Coll. Surgeons 16: 19-22 (June) 1932.

disclosed the following facts: Beginning two and a half years before, and recurring on the average of two to three times a month, the patient had had typical attacks of gallstone colic. After enduring these spells for six months, the patient submitted to cholecystectomy. There had been no jaundice before the operation. Three weeks postoperatively, when the T tube was removed, jaundice associated with chills and fever gradually developed. The chills and fever continued for only one to two weeks but the patient remained intensely jaundiced, passing bile stained urine and acholic stools. Six weeks previous to her present examination, profuse epistaxis had occurred, following which she was given a blood transfusion. The order in which her symptoms developed suggested that her jaundice was of the obstructive type, most likely secondary to a stricture of the common bile duct. This diagnosis was confirmed when exploratory operation was performed.

QUESTIONS ABOUT PREVIOUS EVENTS

If the symptoms are due to functional disease, the physician should inquire carefully into the events leading up to their development. For example, a woman may develop weakness of one arm after eighteen months of caring for an invalid mother who is suffering from a stroke. A man may develop symptoms of functional indigestion after reporting to his business associate's apartment for Sunday morning breakfast and discovering that his partner has just shot himself. Another man may complain of trouble using his right arm after filling out complicated sales-order sheets for fifteen years without having had a vacation during that time.

With such problems it is a simple matter to describe the patient's symptoms, and the physician taking the history may even suspect that the symptoms are functional; but to find out the facts recorded above, which antedate the development of the symptoms themselves and are directly related to them etiologically, requires much tact and mental ingenuity. One must have a low threshold of suspicion for functional disease and, if there are features about the symptoms that are not typical of organic disease, one must attempt to find out the factors likely to be responsible for the symptoms.

Kilgore has described a case that emphasizes this point in a striking way. The patient was a woman 45 years of age who always had enjoyed the best of health until the death of her husband one year previously. She looked hopefully to her eldest son for support, but nine months after her husband's death she gradually experienced the final and crushing conviction that the son's talents were limited to selling newspapers at a profit of less than a dollar a day. Therefore, in addition to caring for her home and her three other children, she took employment in a restaurant, where she stood eight hours daily washing dishes. Then came backache, sleepless nights of worry, anorexia, loss of 20 pounds, nervousness, utter exhaustion and hospitalization.

It took Kilgore five minutes of conversation with the patient to get this information, yet what did he find when he examined her aluminum encased hospital record? Five and a half pages of closely written matter comprised under twenty-eight captions, all neatly underlined with red ink. He toiled in vain through the history for bits of useful information. The marital history yielded the information that the woman had four children but contained nothing about the fiasco of her eldest son. Kilgore summarized by stating that this is a gross example of unrestrained standardization, stereotypism and perfunctoriness in history taking. It does bring forcibly to attention the importance of delving into the background of the patient's complaint and establishing in chronologic order the events leading up to it.

In making his complaint to the physician the patient may be prone to present bizarre and indefinite symptoms along with clinically significant factual data. It must be realized that the average patient knows little or nothing about things medical and that his answer to questions may unintentionally be misleading. It is the difficult but important duty of the physician to analyze each complaint carefully, so that any suspicion of organic disease as a cause of each symptom can be excluded or confirmed. Salzstein [4] summarized the task well when he stated that a physician must be able to extract from the wandering, worried, frequently uneducated and unclassified impressions of a patient a cleancut story without bias and free from leading inquiry. Stewart [5] stated that he thinks of a physician as an attorney who is collecting evidence and examining a witness. He must not take what is given him but must hunt for what he needs, sifting the essential story out of a mass of fiction and extraneous fact. Cavanaugh [6] stated that the art of selecting important data makes the diagnosis of a difficult case a clear and easy process.

PHYSICAL EXAMINATION

When the major complaint has been analyzed thoroughly and notes have been made concerning factual data obtained, or when it

4. Salzstein, H. C.: The Art of Medical History Taking, J. Michigan M. Soc. 34:762-766 (Dec.) 1935.
5. Stewart, D. A.: Medical Histories and History Writing, with Special Reference to Tuberculosis, Wisconsin M. J. 30:257-260 (April) 1931.
6. Cavanaugh, J. A.: Why Histories? Illinois M. J. 72:143-145 (Aug.) 1937.

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becomes apparent that the patient complains of many conditions, the physical examination should be started. While the physician is examining the patient, he should ask specific questions regarding symptoms referable to every part of the body. If the questions are properly put, a denial of symptoms referable to together with normal physical phenomena concerning the part in question should exclude organic disease reasonably well. If an answer is doubtful, the physician must analyze the symptom carefully to determine whether or not it is of clinical significance. It must not be forgotten that patients whose major distressing symptoms are due to functional disease may also have organic disease and that the symptoms of the latter may be elicited only by careful direct questioning.

Examining a patient before composing and recording his history enables one to evaluate more accurately symptoms the significance of which may have been obscure before the examination. It also enables one to give each symptom of which the patient may complain a place in the history corresponding to and commensurate with its diagnostic importance and to correlate or demonstrate absence of correlation between the symptoms and the conditions found.

The value of a clinical history and the ease with which it can be elicited vary with different types of patients. Dunn[7] pointed out that the variation in the consistency of answers given by a patient may depend somewhat on his mental or physical condition as well as on who puts the question and how it is put. He adds that it is essential for the physician to be able to frame and expand questions so that they produce correct and fruitful answers.

I have chosen to divide into four main groups patients whose histories may be particularly difficult and time consuming to elicit. It should be helpful to consider the difficulties presented by each group, and methods by which these difficulties can be surmounted.

FOUR DIFFICULT GROUPS

Foreigners who can speak little or no English constitute the first group. When a physician has the problem of such a patient to solve on a busy day, the temptation may be to spend little time attempting to get the history and proceed with the physical examination. This method is likely to lead to diagnostic inaccuracies. There is just one way that I know of to do justice to the problem of such a patient, and that is to take the history through an interpreter, spending as much time as may be necessary to analyze and evaluate the patient's complaint.

7. Dunn, H. L.: Practical Experiments in What Actually Constitutes a Good Clinical Record, Minnesota Med. 17: 589-591 (Oct.) 1934.

Poor observers constitute the second group. This includes individuals of stolid temperament who usually do not consult the physician until they are disabled by their illness. Often they remember little if anything concerning symptoms antedating the incident leading to their disability. For example, a man came for examination because of a recent gastrointestinal hemorrhage. On direct questioning he was unable to give symptoms suggesting duodenal ulcer, gallbladder colic or other organic disease of the gastrointestinal system, yet at exploration he was found to have not only a duodenal ulcer but also subacute cholecystitis with cholelithiasis. Another man came because, for one week, he had been vomiting almost everything that he ate. He was a farmer, had always worked hard up to one week prior to his examination, and on direct questioning remembered only vaguely some mild indigestion of about thirty years' duration about which he had never done anything. At exploration a chronic duodenal ulcer with almost complete pyloric obstruction was found.

STOLID INDIVIDUALS

In attempting to elicit a history from this type of individual the physician may feel slightly irritated because, although he may be certain that the patient has organic disease and that he should have had symptoms antedating his disability, the patient answers all his direct questions negatively. However, if the physician recognizes the existence of this group of stolid individuals who do not complain until they are practically disabled, he will not be impatient with them for being unable to remember symptoms that they have not felt because of their phlegmatic, insensitive nervous systems.

The value of the history of such patients will be less than that of the average individual, and one may be compelled to rely more on the physical examination and especially laboratory studies in arriving at a diagnosis.

Multiple complainers, many of whom are elderly, constitute the third group. These patients usually are very talkative and may be even garrulous. They may begin their story in a modest way, but as they sense the physician's increasing interest and sympathy the number of complaints increases until every part of the body may become involved. If subjected to direct questioning, every inquiry may be answered affirmatively. They seem fearful of forgetting to mention some detail which usually is of no consequence. They often come to the physician mainly to be sure that no serious disease is developing insidiously. When asked if they are unable to carry on their usual activities on account of the conditions of which they complain, they state that they have to keep going in spite of their difficulties or they say that

they shouldn't stay up and around but they do keep going by sheer will power. Conditions of which such patients complain often have been of long duration. When asked what crystallized their decision to come just when they did, they may reply "Because I had a chance to come with a friend; because my local physician could find nothing wrong with me and suggested that I come for your opinion; because my husband got tired of hearing me complain."

As soon as a physician discovers that he has a patient of this type, he should proceed at once to the physical examination. It is said that Sir Jonathan Hutchinson[8] would always hastily thrust a thermometer into the mouth of any woman who attempted to tell him about her illness. However, I believe that these patients are better pleased if allowed to tell their story. Examining them while they talk, the physician not only can save much time but also better evaluate such complaints.

Patients of this type usually are pleased at the conclusion of their examination if they can be assured that no organic disease is present and their symptoms can be explained adequately on the basis of a hypersensitive nervous system secondary to nervous exhaustion or cerebral arteriosclerosis.

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VAGUE COMPLAINTS

Vague complainers constitute the fourth group. This includes a large group of patients who often present only one major symptom. Their description of this symptom, however, is usually bizarre, meager and not characteristic of any clinical syndrome. In attempting to get what they consider an unbiased opinion, or simply on account of prudery, they may withhold information that might enable the physician immediately to get the proper perspective of the problem. It is of great importance for the physician to find out all the factors which may be behind such a complaint and this can be accomplished only by tactful inquiry. Let us consider some of the factors which crystallize a patient's decision to come to a physician with such a complaint:

Fear of disease often is the real problem behind a vague complaint, although patients rarely will admit it without direct questioning. I usually put the question like this: "Do you seek medical counsel because of the intensity of your distress or mainly because of fear of what might be developing?"

Undisabling, more or less constant soreness or pain, not infrequently of long duration, is probably the most common symptom associated with fear of disease. For example, the basic problem of a patient with a major complaint of such pain in the head may be fear of a stroke or brain tumor. If the pain is in the chest, the fear may be of heart disease; if in the breast, of cancer, and if in the abdomen, of appendicitis. The patient often develops his fear complex after the death of a relative or friend has been caused by the disease feared.

A desire to have the diagnosis of another physician verified is also a factor commonly behind a vague complaint. Patients who come for examination with this objective can be divided into two groups: those who do not disclose the real objective of their examination unless a direct question regarding the diagnosis elsewhere is put to them, and those who name the diagnosis given elsewhere in citing their complaint. Patients of either group present difficulties for the physician in his efforts to elicit pertinent clinical data.

The objective of a patient who comes to a physician to have a diagnosis given elsewhere verified, without disclosing this fact, should be suspected by the physician because of the nondescript nature of the complaint. When the physician's suspicion is aroused, he should ask the patient if he has had examinations elsewhere and, if so, what diagnoses were given him. If a patient has an examination just to check on a diagnosis given elsewhere, it is of the utmost importance to the physician to know what this diagnosis was, so that special attention can be given this problem in planning the examination.

For example, the real objective of a patient with a bizarre pain in the right upper part of the abdomen may be to secure verification of a diagnosis of tuberculous right kidney given elsewhere. He may disclose no urologic symptoms, and there may be neither physical nor laboratory evidence warranting urologic investigation. If the physician did not find out about this diagnosis given elsewhere, the patient would not be able to get a satisfactory opinion concerning his major problem.

PATIENTS WITHHOLD INFORMATION

Some patients purposely withhold pertinent information and the physician must be quick to sense this. I remember a middle aged woman who gave a history that immediately suggested the diagnosis of uterine leiomyoma, and the physical examination confirmed this diagnosis. However, there was something about the way she related her symptoms which suggested that she might be withholding some information. When questioned as to why she had come for examination just when she did come and what her local physician's diagnosis had been, she stated frankly that he had told her a few days previously that she had a cancer of the sigmoid colon and she came to find out about it. Proctoscopic examination disclosed the presence of a rectosigmoid carcinoma, although she com-

8. Hutchinson, Jonathan, quoted by Ward.[2]

plained of no symptoms that could not be attributed to her large uterine leiomyomas.

With the patient who cites the diagnosis given elsewhere as his main complaint, the physician's major problem is to elicit if possible from the patient the symptoms on the basis of which this diagnosis was made. For example, the patient may complain of an "infected kidney." The physician should ask "Of what symptoms were you complaining or in what way were you suffering at the time you saw your physician when this diagnosis was made?" He may find out that the patient's urinary symptoms started several months before, that the patient had no urinary symptoms for the past six weeks and that his real objective was now to determine the present status of renal function.

Often it is very difficult to elicit a recital of the symptoms and disability caused by the alleged disease without irritating the patient. Especially is this task difficult if a patient has been to several different physicians who have given conflicting opinions. If the physician's attitude bespeaks incredulity, the patient is likely to be antagonized; whereas, if his attitude bespeaks kindliness and sympathy, the patient is likely to disclose willingly the symptoms that led his physician at home to incriminate various organs.

MENTAL DISEASE

Another problem, not infrequently the basis of a vague complaint, is mental disease. The physician may have to talk to the patient for a long time before he can get a clue, in the form of a delusion, as to what the problem really is. Strangely enough, the relative who accompanies the patient often will not disclose the delusional state of the patient, even if he is aware of it, but chooses rather to have the physician find it out for himself if he can.

One good way to get at such a problem is to ask the patient if he came for an examination of his own accord or simply because his relatives wanted him to have an examination. If the latter is his answer, the possibility of mental disease as a cause of the symptoms is a reasonable suspicion.

Not long ago I saw a patient whose main complaint was that she could not eat. Her sister had brought her almost by force, for the examination. The patient was sure that she would not be helped. She seemed unable to explain just why she could not eat. She would not partake of all of the Ewald test meal and refused to swallow the Rehfuss tube. The sister was asked to leave the consultation room and the patient was questioned further, especially as to why she was not able to eat all of the Ewald meal. She stated that she could not get rid of it if she did. When asked to elucidate further she stated that she had neither kidneys nor stomach and that therefore there was no way for the food and water to be eliminated. She also thought that many other organs had wasted away. Her sister was fully aware of this delusional state yet did not reveal the fact, else my problem would have been greatly simplified. The physician always should keep in mind the possibility of mental disease as the explanation of a vague complaint.

SUGGESTIONS ON COMPOSING HISTORIES

If the methods described have been employed in eliciting a patient's complaint, the task of composing and recording the data obtained, in the form of a clinical history which has diagnostic value, is not difficult. However, there are a few suggestions concerning the composing and recording of histories which, if followed, will increase their value appreciably:

Keep irrelevant data out of the history so that its length can be kept at a minimum. Often, because of previous instruction in medical school, the recently graduated physician is inclined to record accurately every symptom of which the patient complains instead of analyzing each symptom to determine whether or not the patient actually is suffering from it. For example, the patient may state that he is short of breath on physical exertion yet analysis of this complaint may reveal that he can do the same things that the average individual of his age and weight can do without getting short of breath. Salzstein stated that two or three closely written pages of variegated complaints may represent much effort but do not necessarily indicate completeness or accuracy and probably do not permit logical deductions. Stewart emphasized the importance of separating rigidly fact from the patient's fanciful explanation of fact, or even one's own. Distinguish clearly between what he did have, what he said he had, and what his attending physician said he had in that obscure illness twenty years ago. Stewart added that a disorderly jumble of what the patient said is fit only for the wastebasket. The data that the patient gives should be used, but the physician should analyze and edit it before incorporating it in the clinical history. Remember that the completed history is the physician's workmanship and not the patient's.

When the physician has to deal with a multiple complainer whose symptoms are entirely functional, the history should deal mainly with the events leading up to their development, and the various complaints themselves should simply be enumerated. There is no diagnostic value in the recorded analysis of thirteen complaints each of which is of neurogenic origin.

Finally, after the history has been composed and recorded, forgetting if possible the difficulty with which it was elicited, one should read it over carefully before making a tentative diag-

nosis. The arduousness of its elicitation in some cases may leave a stronger impression than the factual data themselves and thus may lead the physician to erroneous conclusions if he does not reconsider the data in the history before summarizing his impression of the case.

CONCLUSIONS

1. In eliciting a clinical history the physician should achieve three main objectives: He must acquire pertinent clinical data that will lead to a correct diagnosis; he must perform the task with as much speed as possible; he must strive to please each patient.

2. In order that the physician may get the proper evaluation and perspective of a patient's problem, the following four points should be established early in the process of eliciting a clinical history: the major complaint, its duration, what crystallized the patient's decision to undergo the examination just when he did, and whether or not the condition concerning which the major complaint is made has disabled the patient.

3. Patients whose histories may be particularly difficult and time consuming to elicit can be divided into the following four groups: foreigners who speak little or no English, poor observers, multiple complainers and vague complainers.

4. The fundamental problem of a vague complainer often is one of the following: fear of disease, a desire to obtain verification of a diagnosis given elsewhere, and mental disease.

Comments and Reviews

THE ROAD OF THE MEDICINE MAN

Abridgment of the Convocation Address, delivered by Dr. Albert E. Rector, President, State Medical Society of Wisconsin, at Marquette University School of Medicine, Milwaukee, Sept. 26, 1938, and published in the Marquette Medical Review, January 1939.

From an experience of forty-five years in our profession, I hope to make some observations that may be helpful to you. The example of three practitioners of medicine inspired me to enter this field, none of whom accumulated financial independence or ever performed an appendectomy or a tonsillectomy. They lived their professional lives in the same community and received its approval of their services. Your educational advantages make opportunties for you never dreamed of in my student days.

Medicine has widely expanded so that you have the choice of many specialized practices. However, you must first broaden yourself in the general field of medicine. The really broad physician is the conscientious man in general practice who has learned the art of practice and become a teacher in the art of living. These acquired abilities often outrank even the science of medicine in meeting the needs of the public.

You should carry the marks of the educated, ethical man who adapts his personality to the people he serves. You must have the ability to be at ease in the different kinds of homes where you are called so that you may gain the patient's confidence and establish a friendly relationship that the family too may feel at ease during your visit. Your personality should leave in every patient and family contact something of pleasure that helps remove the worries of illness. A casual scientific contact cannot give all that the sick requires. You must give something of yourself to patients other than professional advice. This is implied in the recent report of a committee of the State Medical Society of Wisconsin appointed to study health service:

> The committee feels that the very nature of professional education today tends toward producing physicians who are so engrossed in the technical and scientific phases of medicine that they may lose the human touch. There are no untouchables in disease, and there must be none in medicine. The role of the family physician as the friendly counselor, adviser, and even in that little considered but all important field of encouraging both patient and family, is of extreme importance. Attention is directed to this necessary quality, for, should it be lost, the practitioner will divorce himself from the obligation of the true physician for which the demand and need are as great today as at any time in history.

Some of the qualifications of the family physician are:

1. He must have scientific training and the ability to apply practical knowledge.

2. He must have an earnest desire for advancement in his profession. He must be associated with the local medical society.

3. He should show an interest in community affairs.

4. He must be honest, a man of religion, must not criticize professional associates and should reserve his criticism of scientific subjects for medical meetings and scientific publications.

5. He must subordinate monetary gain to scientific advancement.

With these qualifications he will be able to care for 80 per cent of his community's sick and also do public health work.

Have pride in your work. Your patients will respect the end results on about the same basis as you render your own personal judgment.

They appraise your worth and make keen deductions of your ability.

The public should be made more aware of the implications that are being forced on them by sociologists and governments. You must watch with care the economics of your vocation. Medicine is not a commodity that can be sold. It is a service to protect the public health and care for the sick. In countries where the control of medicine has passed into the hands of government and lay directors, there is a rise in disease in proportion to this domination.

The State Medical Society of Wisconsin from time to time places its seal of approval on doctors who have given meritorious service. This emblem has been given to a few physicians not because of their scientific attainments but because of their devoted service. The emblem has been given to one woman, a country doctor all her life and for thirty-six years secretary to her county medical society. It has been given to a member of the profession present with us today for service to medicine in teaching and training others.

EFFICIENCY OF MEDICAL SERVICE

In the controversy now before the public relative to the type and method of delivery of medical service, I challenge critics to compare the efficiency of all other vocations with that of American medicine. The medical profession has advanced scientifically and has increased its public health efficiency and cooperation with both local and state governments. It has cared for the sick when the family failed, when charity failed, when local, state and federal governments failed in their duty to the unfortunates who were justly their wards. It has delivered a better type of medical care than was furnished by the government in such other types of necessities as food, shelter and clothing, and with less noise and less complaint, and largely with little or no remuneration. The medical profession during the last ten years has been the second largest contributor to medical needs, being surpassed thus only by the federal government. It has contributed, according to conservative studies, $1,000,000 a day during the past seven or eight years. When you compare thus our powerful government, and the medical profession with only 150,000 members in practice, this fact is beyond comprehension.

Disregarding these facts, the proponents of change insist on legislation to further socialize American medicine. The practice of medicine is not a commodity that can be resold at a profit. It is a service that can be delivered only by the properly trained individual.

Having entered the profession, you must dedicate your life to the service it alone can render.

AMERICAN RESPONSIBILITIES FOR THE UNIVERSITY

Abridgment of an address by Dr. Alan Gregg before the Federation of Societies for Experimental Biology, Toronto, April 28, and published in Science, June 23, 1939.

For sixteen years I have had occasion to visit medical schools and institutes of medical research in some thirty countries. In the variety thus encountered, one is reminded of a saying of Oscar Wilde: "When you break the little laws the big laws begin to operate," for out of so many contradictions and differing practices emerge certain underlying principles.

Now, I would like to ask, are we prepared in North America to assume responsibility for the maintenance and continuation of one of the greatest traditions of western Europe, the university? Are we free to select the best there is in the university tradition and cherish it?

An arresting story is told of the tercentenary of Harvard. In three separate instances European delegates to the tercentenary remarked privately to their friends: "I came to this celebration with a heavy heart. Our priceless heritage, the university, is in the gravest peril in Europe. But what I have seen here gives me hope again, for I have seen that it can go on in North America." To match this faith let us ask ourselves the question "Are we fully prepared to carry on if need be?" For that may be our greatest task in the next twenty years.

CHANGING ATTITUDE TOWARD EUROPEAN UNIVERSITIES

Before 1914 in North America we regarded the universities in Europe with earnest respect. Indeed there was admiration and the flattery of imitation. Many of our superior students sought and found in Europe intellectual habit—personal independence, intellectual method—thoroughness and the conviction that there was an opportunity for each to add to the scholarships of the world. Relationships almost filial in their devotion grew up between great teachers and eager Canadian and American disciples. And of peculiar importance and value there spread over our university life that wonderful openmindedness and unselfconscious receptivity which always characterizes ingenuous humility and true modesty. We weren't ashamed to learn nor afraid to try.

From 1914 to 1934 circumstances and attitude have changed. The flow of graduate students to Europe has much diminished. Europe has had less comparatively to offer: its university facilities often seem niggardly, its professors overloaded and impoverished. Confidence and leadership are not in the air. On this side of the Atlantic, university buildings, facilities,

endowments and teaching loads have increased. We have made some substantial additions to the world's store of knowledge. Of all that is worth attention in the European universities we may have accepted only a part, and of what we have accepted only a part in turn may survive. Higher education in North America has grown in an environment peculiar and at variance with the European milieu. The position of the intellectual in Europe may be affected by the fact that in every European capital there is a great university. In America the political capital is not the place of a great university.

CHARACTERISTICS OF AMERICAN UNIVERSITIES

Another characteristic in the North American scene: Underlying higher education here we have forms of secondary education which prepare our students for advanced work in the universities less adequately than their analogies in Europe. For their objectives and for society generally our secondary schools may do a passable job, but for the purposes of the university the secondary schools in America leave much to be desired. One of the reasons must be the relative absence of family ambition and pressure on young people of the secondary school age. On the suburban train out from Paris I used to see a French father and his young son, who used that precious twenty-five minutes in a regular and earnest lesson in English. Later in a similar commuter's train out of New York I saw one time a similar father and son, and this time the father was reading the stock reports and the boy was reading the "funnies."

Historically, our universities grew out of the colleges. The colleges were in the main sectarian enterprises to produce teachers and preachers. There was more pressure for the graduates, teachers and preachers to be numerous than to be excellent, and this pressure had also a flavor of sectarian competition, and so grew up the tradition that the college professor's moral and religious duty was to teach, and this well-nigh to the exclusion of scholarship and participation in self government or associate living. In some of the colleges today there is a measure of sectarian stubbornness, narrowness and pretension which knows no better standard for self comparison than the record of some nearby rival.

DILUTION OF SCHOLARSHIP

Add to this preoccupation with the teaching load the aura of political and social approval expressed in the phrase "equality of opportunity" and the staggering mass of poorly prepared students which have been crowding the colleges and universities and you have a dilution of scholarship which is no better than edema. It will "pit on pressure." As in planting trees too close together, the equality of opportunity is not as important as the nature of the opportunity and relief from unreasonable circumstances. Our universities have accepted so huge a burden of teaching that there is a serious discrepancy in many institutions between the tacit understandings on the campus and the explicit claims and purposes in the catalogs.

TESTS OF A UNIVERSITY

There is a better test than numbers, than equality of opportunity, than the moral duty of teaching. We should rather judge a university or indeed any form of human association by what kind of a life it permits, encourages and rewards. We are flooded by students, by poorly prepared students. We encourage them by our methods, and our tradition of being teachers foremost has accustomed us to being preoccupied with what we are really giving the students. We are sentimental about it. We give till it hurts—till it hurts the student. We should be more preoccupied with the social and intellectual climate created by the university—a social and intellectual climate in which the creative powers of scholars will flourish. The Scandinavians, when they build a laboratory, provide specifically a room or two for the emeritus professor. What a wise understanding of what retirement could mean! I do not retire at 65, nor does the counsel and contact with men above that age cease to be valuable to me. There should be more appreciation of the concept of the university as a place where any person's genius for the scholarly life is cherished. The system of dining in hall in the English university has something we can't capture in hurried cafeteria lunches at the Faculty Club. There is a leisureliness and an equality among fellows dining in a hall which enables them to estimate and experience one another as human beings. That is precious. How soon will we realize that we could pay more attention to each other and thus to the example we set our students?

THE OLD WORLD'S INTEREST IN QUALITY

Equality is the best condition for securing freedom, and whatever helps to make your colleague feel himself your equal is precious to him and to you and to the life of the university. The judicial mind, self criticism, the readiness to discuss and dispute without dogmatism—and then tolerance, dignity and fair play—all these are exquisitely desirable in order that freedom and variety be given a chance to prove their value. Such a theory of the élite and of equality can be conveyed only by example and experience—lectures, books, exhortations and speeches are quite useless. I miss the Old World's interest in quality—and their grave expectations of what an élite may be relied on to do. We take, compared with Europeans, a motherly interest in their difficulties instead of a fatherly

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interest in their trials of strength. We reward the élite with distrust and a heavy routine instead of with freedom, expectation and responsibility. Not long ago a French scholar with no university connections wrote three excellent books in the field of medieval history. In recognition of his ability he was offered a professorship at the Collège de France. He accepted. He called on a colleague in the college to learn a little more of what might be expected of him. After an hour of inconsequential talk he got down to his main inquiry. "Tell me," he said, "what are my duties at the Collège de France?" The reply was "Ask the janitor. He knows when the rooms are heated, lighted and available. For it is the tradition at the Collège de France to select persons who know how to lead in their fields better than any one else can tell them, and we leave that problem to the men to solve as they see fit."

DIGNITY OF SCHOLAR'S POSITION ABROAD

Now such confidence in superior human beings involves a respect for the individual and a naturalism that are remote from the hire-and-fire atmosphere pervading the college and many a university preoccupied with teaching schedules and processing the student. The professor abroad is selected with more deliberate and thorough discrimination than is yet the common tradition here, and then rewarded with a greater measure of confidence. There is a certain dignity in the scholar's position in Europe; it gives us all pause. I think it derives from the stability of his situation. What have we in North America to link the university to society in general, to allow occasional but thorough contemporary evaluation of the universities' work? What are the means of responsible criticism by society at large? The university president? The public relations vice president or office? The alumni? The regents or trustees? If you doubt the importance of the effect of society on the university, think of the danger that lay in the German universities being so close to the government. The professors were in most cases government employees, and when a political group seized the power of the government the professors were included among the newly acquired possessions. We need further reflection on the ways in which society can wisely criticize the university and ways in which the university could sense and in some cases implement such criticism.

SUMMARY

The North American scene is characterized by a cultural homogeneity that overwhelms dissent and puts protest on the defensive. Our universities are divorced from national policy and practical affairs, and this heightens a policy to emphasize learning by symbols rather than by experience and makes the word "academic" an equivalent for "unpractical." Our secondary education is inadequate not for its own objectives but certainly so for the needs of the univeristy. We overemphasize the importance of teaching and so rob the student of experience and of practice in the strategy of his existence. And, lastly, we have too many students, and this dilutes the quality of university experience for those best qualified to receive it.

I think experience in Europe would make you wish we had emphasis on the conception of the university as a place where a certain kind of living and example are best realized. You'd find a large measure in Europe of interest of the élite in their responsibilities, an interest in quality, be it ever so rare, and a respect for the individual—his vagaries as well as his excellences. You might come to see, as I have, that there are advantages in the measure of self direction and self management of the European universities and in the somewhat austere simplicity of the European scholar's life. You'd return reflecting on the significance of the university to society and the responsibility and reflective criticism each of the other. I have ventured to call attention to functions I should like to see more of if we in the universities are to be in part responsible for maintaining and cherishing delight in beauty, enjoyment of reason and joy in the skills of living.

STUDY OF APPLICANTS FOR ADMISSION TO 1938 FRESHMAN CLASS

Condensation of an article by Fred C. Zapffe, M.D., published in the July 1939 issue of the Journal of the Association of American Medical Colleges.

The Commission on Medical Education in 1926 financed a study of applicants for admission to medical colleges of the United States. The last study made by this commission included the 1929 class. The Association of American Medical Colleges in 1932 decided that the study was to be resumed, and since then it has been one of the main activities of that association. This study provides data on the number of applicants each year who sought admission to medical colleges, how many were accepted or rejected with the reasons for rejection, and the number of applications made by individuals; it is also a means to detect fraud. While the number of applicants for admission to medical colleges has varied with the economic conditions of the country, the number of applications has steadily increased. Medical colleges on the whole are accepting fewer applicants, and those accepted are better prepared for the study of medicine. From 1933 to 1938 the number of applications had increased by about 6,500, although the number of applicants through these years remained about the same, 12,131 as against 12,128. The

number of single applicants (that is, those who make only one application), decreased nearly 20 per cent since 1933, while those who made more than one application (multiple applicants) increased about 20 per cent. It is easy to understand why the number of multiple applicants increased, but it is not easy to account for the decrease in the number of single applicants. Most medical colleges have accepted fewer students since 1934.

Women are making a greater effort to enter medicine. The number of women applicants since 1933 has increased by about 26 per cent, and the number of applications made by them has increased by 48 per cent. The acceptances for women applicants has decreased from 62.3 per cent in 1933 to 50 per cent in 1938. There was in this period an increase of nearly 100 per cent of "multiple" applicants, but the number of "single" women applicants was practically the same in 1938 as it was in 1933. The number of women medical students is not increasing very much.

Only 6.6 per cent of the applicants for admission to medical colleges in 1938 had less than three years of college work and of that group 54.4 per cent were accepted. Twenty-four and a half per cent of the applicants for admission to medical colleges in 1938 had from three to four years of college work, and of this group 56.7 per cent were accepted. A hazardous group is the one comprising applicants who had been in college for four or more years but who had not received a degree. The study of student accomplishment shows that they do badly in medical school.

The rejection of applicants may be based on several points. The class may be full; a refusal of acceptance for this reason cannot be regarded against the applicant. The rejection may be based on inadequate credentials; about 3 per cent of all applicants fall into this classification. Rejection may be based on poor scholarship or personality; about 30 per cent of all applicants fall into this group. Some medical colleges accept only A and B students, while others accept as low as C students. Only two medical colleges require, with certain specifications, that an applicant have a college degree for admission; three or four other medical colleges select only those who have a college degree. However, more than 60 per cent of the 1938-1939 freshman class of medical colleges in the United States had a degree, and only 4 per cent of them had less than three years of preparation.

Passing on applications is an enormous task for some medical schools. Seven colleges considered more than 1,000 applications, and one school considered 1,393, of which 214 were accepted. Some state schools will not consider an applicant who is a nonresident. One school accepts only applicants who are members of the religious group which operates the school. Fewer applicants were accepted in 1938 than in preceding years. The total number of applicants enrolled in the seventy-seven medical colleges in the United States in the fall of 1938 was 5,582, not including all repeaters. The total number of applicants accepted was 6,223; 541 accepted applicants did not matriculate.

MULTIPLE APPLICANTS

There were 5,882 multiple applicants, who made 30,000 applications, an average of six per applicant. More than ten applications were made by 590 applicants; one applicant made forty-three applications.

New York State, with about one tenth of the population in the United States, supplied 16.6 per cent of the applicants. Pennsylvania, with about one thirteenth of the total population, supplied about 8.5 per cent of the applicants. These two states, with about one sixth of the total population, supplied about 25 per cent of the applicants. Nineteen foreign countries were represented by fifty-five applicants for admission in 1938.

Judging by past experience, less than 5,000 of the freshman class in medical colleges will graduate; nearly 100 will not go further than the freshman year, many will fail and be dropped, some will find that they do not care for medicine, some will become too ill to continue, a very few will drop out to return to college and some will be unable to finance their medical education.

Correspondence

THE QUESTION CONCERNING ABORTIONS

To the Editor:—I was much interested in the Student Section in THE JOURNAL, November 25, and especially in the questionnaire on page 2005. Do these answers represent an average cross section of the opinions of the medical youth of today? The answer to question 18 shocked me. Perhaps I am an old timer, having been fifty years in the profession. My father also was a physician (Edinburgh 1856). He was taught and he taught me that any interference with the course of pregnancy was nothing less than murder.

To think that, if legal, 68 per cent of the medical students of today would be willing to perform abortions on married or unmarried women, except after consultation and for pathologic reasons, speaks badly for the moral or religious ideals of these young people. In my opinion, the place to cure this condition is in the medical schools, which should lead their students in the right direction.

HENRY WALLACE, M.D., New York.

Medical College News

Medical schools, hospitals and individuals will confer a favor by sending to these headquarters original contributions, reviews and news items to be considered for publication in the Student Section.

Full Tuition for Six Students

The anonymous gift made last year by a friend of Columbia University College of Physicians and Surgeons, New York, of full tuition for six students for the entire four year course has been repeated this year. Last year at Columbia ninety-one students were employed in steady positions as a means of helping themselves through school, while 136 students had temporary jobs. These figures were the highest since the opening of the employment file in the dean's office seven years ago. In fact, 44 per cent of the students had employment, 25 per cent received scholarships and 5 per cent received loans.

Tulane Juniors Awarded Plaque

A handsome plaque was awarded to the junior medical class at Tulane University of Louisiana School of Medicine, New Orleans, for winning the greatest number of points in intramural competition during the year 1938-1939. The class advanced to the semifinals in both basketball and softball and won the touch football championship. Among the principal players of the class were Harold R. Goldfarb, Harry C. Tiller, Jack Hyman, Henry C. Hudson and Arthur Grady Williams Jr.

Louisiana's *Tiger*—A Correction

For eight consecutive years, the medical students of Louisiana State University School of Medicine, New Orleans, have published a weekly paper known as *The Tiger*, Journal of the School of Medicine, Louisiana State University. The Student Section of THE JOURNAL, November 25, page 2011, erroneously credited *The Tiger* to Tulane University of Louisiana School of Medicine. *The Tiger* is, the editors believe, the only weekly paper in this country published by medical students. It has three principal objectives: (1) to cover all news happenings at the school of medicine and report other local and general medical news; (2) to publish scientific contributions from members of the faculty and student body, and (3) to promote various extracurricular activities such as intramural sports and chess tournaments. The staff of *The Tiger* is drawn entirely from the student body of Louisiana State University School of Medicine, with the exception of the medical editor (who serves as faculty adviser), the medical artist and the assistant medical artist.

Fees at Minnesota

The quarterly fee for the medical course at the University of Minnesota Medical School, Minneapolis, is $75 for residents of Minnesota and $125 for nonresidents, payable at the beginning of each quarter. No fee is charged in the medical school for the final hospital or advanced laboratory (fifth) year. The registrar of the university determines the status of applicants as to residence.

Applicants who are not legal residents of Minnesota must pay an application fee of $5 at the time of application. This will be credited to the tuition for the first quarter in the case of successful applicants but will not be refunded to those whose applications are rejected.

In addition, each student is charged an incidental fee of $8.50 each quarter. Laboratory fees may be instituted or modified at any time by action of the board of regents.

A matriculation deposit of $15 ($5 for women students) is required, payable with the tuition of the first quarter in residence, as a guaranty for the return and protection of university materials and equipment, the remainder to be refunded on the student's withdrawal, failure to return for any succeeding quarter, or graduation.

Students who take less than the regular course of study may arrange their fees at the rate of $3.25 (nonresidents $5.75) for each weekly clock hour per quarter.

Repetition of a course requires the payment of additional fees. A graduation fee of $7.50 is charged for each degree conferred.

Late registration: The fee for the privilege of late registration, late change of registration or late payment of fees shall be $2 prior to the day on which classes begin, on and after which the fee increases at the rate of $1 a day, provided no student shall pay more than $10 in fees for such privileges in any one quarter.

Prizes Offered at Minnesota

The Minneapolis Surgical Society offers a first prize of $75 and a second prize of $25 to those members of the senior class of the University of Minnesota Medical School, Minneapolis, or those serving the first year of their internships in Minneapolis hospitals who write the best papers in some field of clinical surgery. These papers must be in the hands of the secretary of the society in March.

The Southern Minnesota Medical Association offers an annual prize of $100 and a medal to the most representative student or students in the senior class of the university. This award is made on the basis of the scholarship, extracurricular activity and character of the student, as well as on the general excellence of the thesis.

The Rollin E. Cutts Prize in Surgery is awarded in the form of a gold medal to that member of the senior class who presents the best thesis based on original work in a surgical subject.

Premedical Students Visit School

A group of forty-five premedical students in charge of their professor of physiology, J. H. Brownback of Ursinus College, Collegeville, Pa., visited Temple University School of Medicine, Philadelphia, November 30. They were shown about the laboratories and clinics by Dr. Morton J. Oppenheimer, asssitant professor of physiology at Temple and an alumnus of Ursinus College.

The William Osler Society at Tufts

The William Osler Society, a student honor organization at Tufts College Medical School, Boston, has announced the names of the following newly appointed members from the fourth year class: Harvey Katz, Gertrude A. Rogers, Elmer L. Grimes and Emil J. Koenig Jr.; from the third year class: Carroll Bryant Jr., George A. Dodge II, Clement S. Dwyer, Herbert F. Hager, Robert S. Hagen, Alfred Kant and Arthur N. Kelly.

Scholarships and Prizes at University of Oregon

At the University of Oregon Medical School, Portland, the Noble Wiley Jones Pathology Research Fellowship, consisting of the interest on $5,000, is awarded annually to a medical student on the basis of scholastic

ability, training in pathology and interest in the work. The Henry Waldo Coe Prize is awarded annually to a second, third or fourth year student who presents an essay on a medical subject exhibiting superiority and originality in composition. This prize is the interest on $1,000. The Pohl Memorial Fellowship is awarded to a student of promise in the field of medicine. With authorization from the legislature, the state board of higher education awards annually a number of scholarships to students in the institutions of the state system who rank high in scholastic attainment and need financial assistance. These scholarships cover tuition. The recipients must pay the building fee, the matriculation fee and special fees. Application should be sent to the dean's office not later than May 15.

Indiana Interns Appointed

All of the 102 members of the last graduating class of Indiana University School of Medicine, Indianapolis, who applied for internships received appointments. The two graduates who did not make applications for internships had other plans. Sixty-four of the recent graduates will remain in Indianapolis for their internships, and eleven will intern in hospitals in Muncie, South Bend, Terre Haute, Lafayette and Hammond. The other twenty-seven graduates will intern in hospitals in Ohio, Illinois, California, Colorado, Minnesota, Missouri, New York, Louisiana, Canada, Pennsylvania, Washington, New Jersey and Wisconsin.

The dean of Indiana University School of Medicine, Indianapolis, has announced that, among the twenty-eight recent graduates appointed to serve as interns in Indiana University Medical Center Hospitals in 1940-1941 will be the following six graduates from other states: O. Will Allison, Danville, Ill., Jefferson Medical College of Philadelphia; Maurice A. Canon, Amarillo, Texas, University of Texas Faculty of Medicine; John N. Carnes, Gallipolis, Ohio, Ohio State University College of Medicine; George P. Smith, Denver, University of Colorado School of Medicine; Dwain N. Walcher, Nokomis, Ill., University of Chicago, and Henry J. Winsauer, Kohler, Wis., University of Wisconsin Medical School.

Graduate Training for Residents at Columbia

A large number of residents in the hospitals affiliated with Columbia University College of Physicians and Surgeons, New York, last year took regular instruction in medical sciences in the graduate laboratories of the school or were otherwise engaged in work toward the degree of doctor of medical science. Some hospital residents received science instruction in various hospitals. As this program of graduate training evolves, an increasing number of residents will be enrolled. This program is independent of that of undergraduate students, but every effort is made to integrate the needs of both groups of students and to secure full coordination of the staffs of the clinical and scientific departments of the medical school. An effort is made to regard the residents as graduate students in the university sense. They are placed largely on their own responsibility for learning the subjects; instruction is by means of individual work, conferences, laboratory experiments, investigation of problems, seminars, and the reading of original articles. Clinical men on the staffs of the hospitals take part in the exercises and assist in laboratory instruction. No two services have the same arrangement and distribution of time. Some services require the residents to report ahead of the time of their appointment in order to obtain the instruction offered in the medical sciences; others believe that the most effective way of coordinating medical science instruction and clinical training is to offer certain blocks of time for laboratory investigation throughout the residency period. In several instances the medical science training is provided in the evenings for convenience. Some of the residents taking basic science training who demonstrate special aptitude, preparation and interest desire to become candidates for the degree of doctor of medical science; however, only those appointed in one of the affiliated hospitals or those who have completed a satisfactory residency and wish to spend not less than one year in one of the medical sciences are eligible for registration for the degree.

Several of the hospital services at Columbia have been reorganized as an expression of the changing needs of graduate training. The surgical service of the Presbyterian Hospital, for example, has been placed entirely on a graduate basis, the surgical internship being eliminated and a mixed medical service of eighteen months being made a prerequisite for the surgical residency. Similar changes have been made at St. Luke's Hospital and are being contemplated at other affiliated institutions. In his report for the year ended last June 30, Dean Willard C. Rappleye anticipates that as modifications in the house staffs of these affiliated institutions are effected, in keeping with the current trend toward a rounded educational experience for their residents, the facilities for graduate training at the medical school will be further utilized.

The Ten Highest in Part I

Among the 1,047 candidates who took the examinations of the National Board of Medical Examiners in June in Part I or completed Part I by taking subjects previously postponed, the names of those who made the ten highest average grades, as reported in the *Diplomate*, are as follows:

NAME	MEDICAL SCHOOL	AVERAGE
Bertram Selverstone	Harvard '41	91.50
William G. Armstrong	Albany '41	90.50
George James	Yale '41	90.17
Robert W. Raymond	Albany '41	90.17
Ernest M. Hammes	Harvard '41	90.
Edward O'Connell	Yale '41	89.67
Craig W. Borden	Harvard '41	89.
H. W. Diefendorf	Yale '41	89.
Sheldon C. Sommers	Harvard '41	89.
Sidney Cramer	New York Med. College '41	88.83

The Ten Highest in Part II

Among the 224 candidates who took the examination of the National Board of Medical Examiners in June in part II, the names of those who made the ten highest average grades are as follows:

NAME	MEDICAL SCHOOL	AVERAGE
Frank H. Russ	McGill '39	88.40
Phyllis J. Burdon	Oregon '39	87.40
Lester M. Narins	Long Island '39	87.20
Debora Pinales	Medical College of Virginia '39	86.40
Robert M. Smith	Harvard '38	86.20
William B. Stromme	Minnesota '40	85.80
Aaron Kellner	Chicago '39	85.60
Sam J. Merenda	St. Louis '39	85.40
Edmund J. Schmidt	Marquette '40	85.20
William G. Marcoux	Tufts '39	84.80

Students Invited to Clinical Meeting

Medical students in New Orleans were especially invited to attend a joint meeting of the New Orleans Gynecological and Obstetrical Society and the Mercy Hospital staff at Mercy Hospital December 6. The speakers were Drs. Max M. Green on infection of the upper urinary tract; Philips J. Carter on urethral caruncle; Rupert E. Arnell, Chicago, on granuloma venereum of the cervix, and William F. Guerriero, Monroe, La., on criteria for the management of toxemia of pregnancy.

Fees at Arkansas

According to the official announcement of the sixty-first annual session of the University of Arkansas School of Medicine, Little Rock, the total tuition and annual deposit fees for residents and nonresidents are $275 and $430, respectively, for each of the four year courses. There is also a diploma fee of $10. This total does not include the breakage fee, which is fixed by each department. The building fee, which is included in these totals, was increased to $75 for residents and $80 for nonresidents, but this increase is not applicable to students who registered prior to 1937-1938. Students who fail to register and fail to pay fees on the dates named are required to pay $5 additional. Students have the privilege of using an available locker by paying at the registrar's office $1 rental. A fee of $5 is to be paid at the time of registration by each student for the Student Activities Fund.

Orientation Lectures for Freshmen

The University of Georgia School of Medicine, Augusta, inaugurated this year a series of orientation lectures for the freshman class. The following lectures were given in this series: The Importance of the Humanities by Dr. George L. Kelly, dean; Philosophy in Every Day Life by Dr. Eugene E. Murphey, professor of clinical medicine; Heredity and Medicine by Dr. Joseph Krafka Jr., professor of microscopic anatomy; Ethics in Daily Life by Dr. Virgil P. Sydenstricker, professor of medicine; Environment and Adaptation by Dr. Hervey M. Cleckley, professor of psychiatry, and Science and Knowledge by Dr. Fred A. Mettler, professor of anatomy.

Prizes Awarded at Woman's Medical College

At the recent eighty-seventh annual commencement of the Woman's Medical College of Pennsylvania, Philadelphia, Isabel Roberts Roe received the John Stewart Rodman Prize for the member of the graduating class who made the best record in surgery; Isabella M. Schmitz-Dumont, the Anna Howard Shaw Prize of $20 for her thesis "Prevention of Anesthetic Deaths"; Rita E. Scott, the Sarah Marchand Milligan Book Award for her thesis "Effect of Occupation on the Cardiovascular System"; Dorothy O. Dart, the Martha Tracy Book Award for her thesis "The World-Wide Problem of Malaria Control," and Barbara Harris, the Dr. Hubley R. Owen Prize for the best examination in junior surgery.

Oklahoma Personal

Jay E. McCormick, a graduate of the University of Oklahoma School of Medicine, Oklahoma City, gave a talk on his experiences in medical school at the annual banquet of Alpha Epsilon Delta honorary premedical fraternity at the University of Oklahoma.

The Charity Hospital Intern Corps

About 150 new junior interns at the Charity Hospital, New Orleans, representing medical schools throughout the United States, held a meeting to outline a program of activities for the year. The Junior Club Committee is obtaining speakers for a series of addresses to the interns. Another committee has prepared a short summary of majority opinion among the interns and presented it to the resident staff in an effort to round out the curriculum during the intern year. Dr. Richard Ellis Gardner has been elected president of the intern corps, and Dr. Jerome A. Weaver, secretary. The corps was addressed the evening of October 10 by Dr. Urban Maes, professor of surgery at the Louisiana State University Medical Center, New Orleans, on intestinal obstruction.

Recreation Room for Students

Washington University School of Medicine, St. Louis, has furnished, for the first time, a recreation room for students on the second floor of the Oscar Johnson Institute. The room is furnished with comfortable chairs, card tables and a book shelf, and nearby are rest rooms and facilities for ping pong; the medical students are also permitted to use the handball and squash courts when they are not occupied by the interns at Barnes Hospital. These courts, on another floor, have showers and lockers available.

Scholarship at the University of Kansas

The Porter Scholarship is awarded to the student at the University of Kansas School of Medicine, Kansas City, who has the highest average class standing for the first three years. It is given in the fourth year and amounts to $300.

Prizes Awarded Students at Jefferson

The following prizes were awarded by the dean, Dr. Henry K. Mohler, at the commencement of Jefferson Medical College of Philadelphia, June 2, 1939:

The Henry M. Phillips Prize of $75 awarded on the recommendation of the professor of medicine to the graduate most worthy, to Fred S. Badman, with honorable mention of Furman Payne Covington.

The Henry M. Phillips Prize of $75 awarded on the recommendation of the professors of surgery to the graduate, in their opinion, most worthy, to Louis Harry Schinfeld, with honorable mention of George Lewis Greaser.

A gold medal awarded for the best essay on a subject pertaining to the practice of medicine, to George Hollander.

A gold medal for the best essay on a subject pertaining to surgery, to Isadore Slovin.

By Professor Anspach, $25 for the best examination and clinical report on gynecology, to Arnold Valenzuela Arms, with honorable mention of Isadore Slovin, Paul Fried and George Hollander.

By Professor Williams, $25 for the best examination in otology, to Charles Hugh O'Donnell, with honorable mention of James Thomas Grimes.

A gold medal for general excellence in clinical surgery, in memory of Francis Torrens Stewart, to George Beverly Hood, with honorable mention of James Edward Cochran and John Joseph Barrett Kilker.

By Professor Vaux, $25 for the best examination in obstetrics, to James Joseph Fitzpatrick, with honorable mention of George Beverly Hood and Arthur Robert Wertheim.

By Professor Rugh, $25 to the member of the senior class presenting the best report of the clinics in orthopedic surgery, to William Joseph Wagner, with honorable mention of Paul Fried and Louis Harry Schinfeld.

By Professor Bauer, $25 for the best examination in pediatrics, to George William Miller III.

By Professor Shannon, $25 for the best examination in ophthalmology, to Joseph Medoff, with honorable mention of David Dennis Dunn and Daniel Geddie Monroe.

By Professor Clerf, $25 for general excellence in laryngology and bronchoscopy, to Henry Herbert Stroud.

By Professor Alpers, $25 for the best examination in neurology, to Henry Herbert Stroud.

By Clinical Professor Keyes, $25 for the best examination in psychiatry, to Jack Ralph Wennersten.

A gold medal for the best examination in therapeutics, to Henry Herbert Stroud.

W. B. Saunders Company Prize. Seventy-five dollars' worth of their medical publications to the student who passes the best general examination at the end of the senior year, to John Dominick DePersio.

William Potter Memorial Prize, awarded to that graduate attaining the highest general average in the final two years of the medical course, to Henry Herbert Stroud.

By the Alumni Association, a medal for the best general average gained in the examinations for the entire curriculum, to Arthur Robert Wertheim.

Physiology Prize, a gold medal for the best essay, or the best examination, on a subject pertaining to physiology (open to undergraduates of the second year), to Charles Michael Gruber Jr.

A gold medal, awarded to the student who has the highest grade in the anatomic subjects of the freshman and sophomore years, to John Young Templeton III, with honorable mention of Frederick Balthas Wagner Jr. and Oliver Judson Kreger Jr.

D. Appleton-Century Company Prize. Fifty dollars' worth of their medical publications to the student who passes the best general examination at the end of the junior year, to Alan Murray Schaeffer.

Schaeffer Anatomic League Prize, a gold medal awarded to the member of the league presenting the best thesis in anatomy, to Frederick Balthas Wagner Jr., with honorable mention to George Francis Catlett.

Aid for Students at University of Virginia

The University of Virginia Department of Medicine at Charlottesville maintains a personnel office for the benefit of students who wish to obtain employment. A new student should not attempt to attend the school unless he has resources to defray at least half of the expenses of the first session. Assurance of employment cannot be given until after the student's arrival at school. The university also has certain loan funds from which deserving students may obtain loans. There are also special scholarships open to medical students. The William A. Herndon Scholarships are awarded by the faculty after a competitive examination held during the summer. These scholarships carry a stipend of about $500 and continue for four years of the medical course and are awarded to candidates unable to pay for their medical education who signify their intention of entering the medical services of the army or navy of the United States. Two appointments will be made in September 1942. The Richard Henry Whitehead Scholarships are awarded to promising male students who have finished at least two years of the medical course. New appointments to these three scholarships will be made for the session of 1939-1940. The two Henry Clay Marchant Scholarships with a stipend of $360 each under certain stipulated conditions may be awarded to medical students who are preparing to be medical missionaries.

The stipend of the State Scholarships is the remission of $100 of the tuition fee. The tenure is one year, but an incumbent may be reappointed each year for four years. The number of these scholarships awarded in any department in any year does not exceed 20 per cent of the enrolment of the undergraduate students from Virginia in any department in the preceding year.

In Honor of the Freshmen

The sophomore class at Temple University School of Medicine, Philadelphia, was host December 15 to the other classes at the annual dance given in honor of the freshmen, held in the auditorium of Mitten Hall. On this occasion, the freshmen were given the traditional medical school keys as favors.

Special Courses for Residents

The resident physicians at Charity Hospital, Touro Infirmary and the Eye, Ear, Nose and Throat Hospital, New Orleans, will have an opportunity for postgraduate study in ophthalmology in a two year course of seven months each, which opened Oct. 9, 1939. The course has been provided by both Tulane University of Louisiana School of Medicine and the Louisiana State University School of Medicine and is preparatory for the American Board of Ophthalmology. The didactic course has been divided into the following twelve sections, each of which will be given ten hours: (1) embryology and anatomy, (2) histopathology and the eye and orbit, (3) physiology of vision, psychology of vision, and physiologic optics, (4) refractions, (5) ocular motility, (6) external diseases of the eye, (7) ocular therapeutics, (8) ophthalmoscopy, (9) medical ophthalmology and clinical pathology, (10) neuro-ophthalmology and perimetry, (11) ophthalmic surgery: demonstration of cataract operation on cats' eyes, (12) diagnosis-examinations.

Indiana Personal

Dale E. York, of Bloomington, and Elbert Harold Laws, of Milan, seniors in the Indiana University School of Medicine, Indianapolis, have been appointed to internships in the Philadelphia General Hospital, Philadelphia, in a competition with 150 applicants for thirty-five internships; they were two of six accepted from schools other than the University of Pennsylvania School of Medicine. The rotating internships will begin July 1, 1940.

Scholarships and Loans at Alabama

Among the prizes available to students at the University of Alabama School of Medicine, University, is the Phi Beta Pi medical fraternity annual scholarship of $90, awarded each year to a worthy freshman matriculated by June 1. The award is made by a committee of professors to a man or woman who is in need of financial aid and whose previous scholastic record and other qualifications give promise of a successful career in medicine. The dean's prize, consisting of a set of Harvey Cushing's "Life of Sir William Osler," is awarded annually to a sophomore who in the opinion of the teachers of the sophomore class "gives promise of becoming the highest type of practitioner of medicine." The Joseph Henry Walker III Memorial Award of $25 is given annually to a native Alabama student who after completing the first year gives promise of the most useful service in medical practice. This award is decided on by the senior teachers of the freshman class.

Prizes Available at Yale

Following are some of the prizes awarded to students at the Yale University School of Medicine, New Haven, Conn.:

The Campbell Gold Medal. Awarded to the student who secures the highest rank in the examinations of the course of diseases of women and children.

The Ferris Prize in Anatomy. Awarded to a first year student in the school of medicine who, in the opinion of the staff of the department of anatomy, merits recognition for the excellence of his work in dissection.

The Keese Prize. Awarded annually to the student who presents the best thesis.

The Parker Prize. Awarded annually to the graduating student who, during his course, has shown the best qualifications for a successful practitioner, the faculty to be the judges.

The Perkins Scholarship Prize. Awarded annually to the student making the best record in scholarship in the basic subjects of the medical and biologic sciences.

The Ramsay Memorial Scholarship Prize. The income of this fund awarded to a student of unquestioned ability and character who has completed his first year in the department of clinical medicine.

Expenses at Alabama

For payment of fees at the University of Alabama School of Medicine the school year is divided into three fiscal terms, while for instruction the year is divided into two semesters. The tuition per fiscal term is $30, the university fee per fiscal term $16, the Student Activities Fee per fiscal term $4.50, the laboratory fee per semester $60 and the breakage and clinical deposit per semester $20. The university fee covers registration, library, gymnasium, medical and incidental fees. The Student Activities Fee permits student membership in the athletic association and free admission to all intercollegiate contests on the campus in which the university team is one of the contestants and covers the subscription to the *Crimson-White*.

Students who are delinquent in paying their fees are required to pay a small additional sum. If the delay exceeds nine days a delinquent fee of $5 is charged and, in addition, the president is required to cause the withdrawal of the student from the university unless a satisfactory explanation is given.

Table board for men varies from $18.50 a month, if paid in advance, to $25 a month with private families. Rooms in the quadrangle cost about $6 a month, in Gorgas Hall $7.50 and in the new dormitories, if two men occupy one room, from $24 to $30 a term, and with private families from $7 to $15.

Harvard Graduates' Internships

Following are a few of the graduates of the 1939 class of Harvard Medical School, Boston, who are serving internships at hospitals outside of New England: Dr. William M. McGaughey is serving a one year rotating internship at Mercy Hospital, Chicago; Dr. Joseph H. Phillips is serving a surgical internship at the Royal Victoria Hospital, Montreal; Dr. John F. Roach is serving a rotating internship in the United States Naval Hospital, Philadelphia; Dr. John A. Sims, a rotating internship at the Denver General Hospital, Denver, and Dr. Ernest H. Wood Jr. a rotating internship at the Philadelphia General Hospital, Philadelphia.

Scholarships and Fellowships at the University of Chicago

Seventy or more regular university fellowships are provided in all departments of the University of Chicago by appropriations from the general funds of the university. The university requires of holders of these fellowships a modicum of service to be done under the direction of the department in which the appointments are made. Such service may consist of assistance in reading and preparing examination papers, work on a university journal, or assistance in one of the departmental laboratories, libraries or museums; in no case is a fellow expected to devote so much time as to interfere seriously with his own particular studies.

In addition, there are several special and annual fellowships for advanced study in special fields. These appointments are made by the departments in which these honors are assigned and are usually to persons who have begun resident study. Among these fellowships are the Frank Billings Memorial Fellowship; the James B. Herrick Fellowship in Medicine; the Ernest E. Irons Fellowship in Medicine; the Wilber E. Post Fellowship in Medicine; the E. R. LeCount Fellowship in Pathology; the William H. Wilder Jr. Fellowship in Neurology; the Arno B. Luckhart Fellowship in Physiology; the Nicholas Senn Fellowship in Surgery; the E. Fletcher Ingals Jr. Fellowship in Laryngology and Otology; the Sydney Walker III Endowed Scholarship in Physiology, and various others. The Douglas Smith Foundation supplies funds to support various research projects in medicine, the fellowships awarded varying with the problems under investigation and the qualifications of the applicants. There are other scholarships available as well as special research funds and foundations, and endowed scholarships, information concerning which may be had on writing to the dean of students in the Division of Biological Sciences, Cobb Lecture Hall, room 216, University of Chicago.

Loan Funds at the University of Chicago

The University of Chicago publishes a special circular entitled "Awards and Aids," which gives details concerning all forms of aid to students and the routine methods of application for aid. This circular will be sent on request. Friends of the university have created loan funds to aid temporarily students of worth and promise. These funds are limited and are exhausted early in the academic year. There is also the Clara M. Coit Loan Fund for Medical Students, established to aid needy students who give promise of unusual service in medicine. Interest is charged at the rate of 4 per cent. Application should be made to the Dean of Medical Students. The Medical Students' Loan Fund, established by the Physicians Association of Cook County, is available for medical students, preferably Negroes, and is lent with interest at 4 per cent. Application should be made to the Dean of Medical Students. The national fraternity, Alpha Epsilon Iota, has available a loan fund contributed by its members in memory of one of its members, Jane Darling Stevenson. The loans are restricted to women medical students in advanced classes. Further information about this fund may be obtained from the chairman of the national committee, Monica Donovan, M.D., 450 Sutter Street, San Francisco.

Michigan Personal

Among the new interns in the department of internal medicine at the University Hospital at Ann Arbor are Malcolm Block, William H. Bates and Sim P. Dimitroff, all of whom received their M.D. degrees from the University of Michigan School of Medicine, Ann Arbor, last June.

Expenses at North Carolina

The tuition and other fees for each quarter at the University of North Carolina School of Medicine, Chapel Hill, are (1) tuition and matriculation, $88.34, including the fee for physical education, the library, infirmary service, debates, registration costs and membership in the athletic association; (2) student publications, $2.30; (3) laundry deposit, $8.50, and (4) student union fee, $1, making a total for each quarter of $100.14. Each student whose bona fide residence in North Carolina has not been established must pay an extra fee of $33.34 for each fall, winter or spring quarter. Each student must provide himself with his own microscope. A deposit of $10 is required for the first registration of the year to cover the cost of the materials purchased from the medical storeroom, and the balance left at the end of the college year will be refunded.

Board without room can be obtained in town for from $22.50 to $35 a month. The University Dining Hall Cafeteria serves food at such prices as will only meet necessary expenses.

Room rent in the university dormitories, including light, heat and service, ranges from $5.50 to $15 a month for each occupant. There is a new dormitory within a block of the medical building. All rooms are completely furnished, but students will provide their own pillows, bed linen for single beds, blankets and towels.

Wisconsin State Board Questions

The following questions in pediatrics were given at the examination held in Milwaukee, June 27-30, 1939, by the Wisconsin State Board of Medical Examiners:

(Answer six.)

1. Describe rubeola:
   (a) Give cause and diagnosis.
   (b) Describe the five stages.
   (c) What are its principal complications?
2. (a) Describe pertussis. Give cause, diagnosis; describe the various stages and treatment.
   (b) Describe scarlet fever. Give diagnosis, cause, complications and treatment.
3. Differentiate between lobar and bronchial pneumonia in children, as to the onset and temperature curve. Give the prognosis and termination of the disease.
4. (a) Mention the important points in prevention and treatment of gonorrhea of the eye in infants.
   (b) 1. Give the clinical features in the treatment of diphtheria.
   2. What preventive measures are recommended in transmission of the disease?
5. (a) Differentiate between scarlatina, measles and roseola.
   (b) Differentiate between cerebrospinal meningitis and tuberculous meningitis in children.
6. (a) What are the symptoms of pyloric stenosis?
   (b) Outline treatment and diet.
7. Describe the clinical, laboratory and x-ray findings of active rickets in infancy. Also treatment.